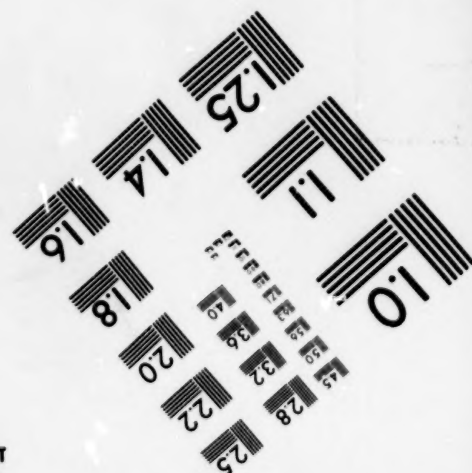
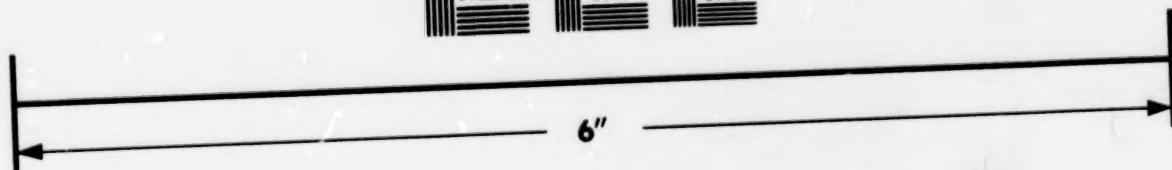
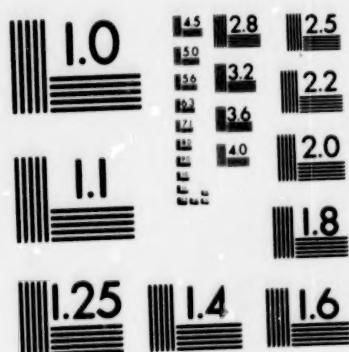


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USSR Report

ECONOMIC AFFAIRS

No. 1026



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ECONOMIC POLICY, ORGANIZATION AND MANAGEMENT

MERITS, SHORTCOMINGS OF ECONOMIC MANAGEMENT INDICATORS EXAMINED

Moscow EKONOMIKA I MATEMATICHESKIYE METODY in Russian No 4, Jul-Aug 82 pp 511-520

[Article by V. P. Khaykin from Kharkov: "Cost Estimates and Economic Leadership of Industrial Enterprises"; the article is published as a point of departure for discussion]

[Text] As was emphasized at the 26th CPSU Congress, an important factor for intensifying the economy, for improving its efficiency and for making better use of the existing resources is an improvement in management methods and the system of planning and report indicators and the more skillful application of material and moral incentives aimed at "closing off for the loafers and poor workers any escapes for a good life with little work" ("Materialy XXVI s"yezda KPSS" [Materials of the 26th CPSU Congress], Moscow, Politizdat, 1981, p 59). For this reason, the setting of the economic indicators for evaluating and encouraging the work of associations and enterprises should be an object of close attention for Soviet economists. This has also been the aim of the Decree of the CPSU Central Committee and the USSR Council of Ministers "On Improving Planning and Strengthening the Effect of the Economic Mechanism on Increasing Production Efficiency and Work Quality" of 12 July 1979 and the words of L. I. Brezhnev at the Party Congress on the necessity, in steadily carrying it out, at the same time to move farther in solving the problems which have gathered.

The practical implementation of this task urgently requires a careful analysis of the existing evaluation and incentive indicators, particularly the cost ones, disclosing their properties and those consequences to which their use can lead in the planned leadership of the associations and enterprises. Without such analysis the reorganization of the economic mechanism will not be effectively carried out.

Increased efficiency of social production and improved quality indicators for the national economy presuppose primarily the unconditional support for the output of products essential for society. Unfortunately, the experience of using various cost indicators for the production volume as the basic evaluation and hence incentive characteristics of operations undoubtedly shows that there has always been one or another method of "skirting" them, that is, ways to receive a high evaluation without sufficient right to this. For example, a general drawback of all the cost indicators for the production volume in industry has

been the possibility of manipulating the output structure, increasing the proportional amount of those articles which are "advantageous" for the enterprise from the viewpoint of the easiest and also artificial increase in the production volume due to any sort of tricks which have nothing in common with the real satisfying of national economic needs. As an example, for gross product this would be the manipulating of the balances of incomplete production and for commodity product, the output of articles which are formally for sale (but in reality, for the warehouse), "convenient" to manufacture but not in demand, and for the sales volume, improper methods for accelerating the sales process to the detriment of the product consumers.

In particular, the geography of the market has come to play not the last role under the conditions of assessing the work of the enterprises and associations in terms of the sales volume. Clearly, if the plan had been going well, then the enterprises would be interested in supplying products primarily to those clients which are located not far off, and even better in the same city, although possibly from the national economic viewpoint it would be more essential to ship first to the distant purchasers. But without such extremes, that is also with a "slow" plan, the suppliers would more carefully study the geography of the market and promptly accelerate deliveries to nearby regions. In any event, the marketing would be turned into a more complex task than before and a real economic effect would far from always be achieved for the national economy.

Ways also appeared for skirting the sales index, in particular, the artificial acceleration of payments without a corresponding acceleration in the turnover of real values. Cases are known when for more quickly handling payments for articles which had not been promptly manufactured and dispatched, at the very end of the month or "special messengers" were sent out who, in bypassing the existing provisions, contrived in a single day to pass the payment documents through the supplier's bank, then transport them thousands of kilometers away to the location of the purchaser, process them at the client's bank and "remit" the money by telegraph--all in a single day! Undoubtedly here the "pushers" [middlemen] showed enviable efficiency but this has no relation to a real acceleration of the turnover of funds in the national economy. Quite the contrary, the appearance of a rapid and prompt selling of the product in this instance is merely concealing the unrhythmical operation of the suppliers.

Among the methods employed to artificially accelerate sales, one must also put the pressure applied against the customers in the aim of forcing them to provide letters of credit when there is no real national economic need for this or to force them to purchase articles which are not indispensable, under the threat that otherwise the delivery of the needed articles would be held up, and so forth.

Thus, an examination of the possibilities of the various indicators for the production volume for using them in assessing operations and encouraging the enterprises (associations) makes it possible to assert that all these indicators suffer from various shortcomings and none of them is capable of guaranteeing that its high level actually reflects the effective work by the enterprise's collective.

Obviously, the question is not of the specific form of one or another cost indicator for the production volume. The reason for their "inviability" lies clearly in the fact that the actual content of each of them is difficult to monitor from above. The washing out of the specific product types in the total product value leads to the substituting of one or another, to replacing a real rise in the production volume by an increase in the value of incomplete production or by the output of articles not in demand or by the unmerited rapid receipt of payments and so forth. Hence an assessment of operations and the encouraging of the enterprises should be separated from the volume indicators of product value and should be linked to such measures of efficiency which, along with general state supervision from above, would to a greater degree permit also verification from below, in the course of daily relations between the various enterprises (associations). These would also make it possible to consider the deviations in the production of individual product types and their supply to the national economy.

These demands are primarily met by the focusing of the operational evaluations and incentives for the enterprises on their fulfillment of deliveries. On the one hand, deliveries are maximally specific, they permit supervision over each product type and the effective satisfying of demand for it by the national economy. On the other, the fulfillment of deliveries without fail presupposes the involvement in this process of the two interested parties, the supplier and the consumer of the product. For this reason, daily reciprocal supervision is possible here. The latter circumstance is particularly important because, as a consequence of the profound specialization and broad cooperation of the enterprises, as inherent to a developed socialist economy, their interdependence upon one another grows substantially. The same is true for the effect on their operations of the prompt fulfillment of obligations to supply partners with materials, semifinished goods, preassembled articles and so forth.

In viewing the links of an enterprise with its suppliers as a complex system the operation of which depends upon the trouble-free functioning of each link (supplier) and in using the calculation methods of reliability theory, it is easy to show, let us say, that with 70 suppliers of various materials and a probability of a failed delivery by one supplier equal to one out of 100, the total probability that none of the suppliers will violate its obligations (that is, none of the ties will be broken and the enterprise will operate normally and smoothly) will be just $(1-0.01)^{70} = 0.495$. In the remaining cases, in a certain element of the coordinated ties of the consumer enterprise there will be a breakdown, the flow of materials essential for the normal course of production will be halted and this threatens to halt the production process at it.

In practice, in the manufacturing industry and particularly in machine building, the number of suppliers for each enterprise can greatly surpass 70 (for example, more than 90 enterprises supply just parts under subcontracting to the Volga Motor Vehicle Plant, the Kharkhov Serp i Molot [Hammer and Sickle] Motor Building Association has around 120 suppliers of assemblies and parts while the total number of partner suppliers for such plants as the Saratov Electrothermal Equipment Plant and the Kharkhov Electromashina [Electric Machine] Plant approaches 400) and the probability of delayed fulfillment of deliveries often exceeds the above-adopted amount of 0.01. For this reason, the total probability of a breaking of the chain of production ties can even be greater. In truth,

such a turn of affairs can be prevented by a certain duplication of suppliers, the creation of emergency supplies (reserves) and so forth. But the danger of a breaking of the designated chain is not reduced here and it will merely be partially neutralized and by diverting assets of the consumer enterprise and society as a whole. For this reason ensuring the uninterrupted fulfillment of deliveries by cooperating enterprises is one of the most important tasks and all means, including economic incentive methods, should be used for carrying it out.

Consequently, the fulfillment of deliveries, orders and the economic contracts setting them up should become one of the main evaluation and incentive indicators for the operation of industrial enterprises. This is now being realized in practice. In particular, the Basic Provisions on the Formation and Expenditure of Incentive Funds in 1981-1985 in Industry envisage [1, pp 142-161] an increase in the deductions into these funds in fulfilling the delivery quotas over each quarter and as a running total from the start of the year or a reduction in these funds with the nonfulfillment of deliveries.

At the same time, a number of questions related to encouraging the carrying out of deliveries remains unresolved. Thus, the making up of the product not delivered on time in the following quarter essentially involves also the making up of unreceived incentive funds. On the one hand, this encourages the suppliers who have delayed the fulfillment of a contract to ultimately carry out the obligations, but on the other, aids little in strengthening their interest in promptly delivering the products. Obviously, it is essential to introduce a retaining of a portion of the incentive funds, differentiated depending upon the length of delivery delay, with the unprompt carrying out of the contracts.

Also slight is the amount of reduction in incentives with the incomplete delivery of products, that is, the incentive force of the punishment does not correspond to that damage which the clients and the entire national economy suffer with the nonfulfillment of obligations by the manufacturer enterprise. This is largely due to the current procedure for determining the level of underdelivery on a basis of the percentage of plan fulfillment in terms of product sales considering the carrying out of the delivery obligations. Without mentioning that in the given situation a majority of the shortcomings of the sales indicator (for example, the influence of the receipt of payments, the geography of the market, and an interest in the primary deliveries of expensive material-intensive articles) is maintained, although in a veiled form, the very amount of the underdelivery in a majority of instances is on a level of several percentage points. For the manufacturing enterprise, psychologically this also does not appear as a major violation and economically is not punished too severely, while for the consumer, an underdelivery of even small amounts of batches of preassembled articles or semifinished goods can threaten a breakdown of its entire program.

For example, if an enterprise which produces parts and small preassembled articles essential to a large number of client plants fails to fulfill its annual obligations by 1.5 percent, it loses little in its material incentive fund and even less so for the average earnings of its employees. In actuality, according to the rates recommended in the Basic Provisions, the reduction in the material incentive fund can be 1 percent of its planned amount for each

percentage of the nonfulfillment of deliveries, that is, in our case 1.5 percent (if, of course, the other plan indicators are fulfilled). Considering the existing proportional amount of incentive in wages, this would be significantly less than 0.4 percent of the average earnings of the employees. Clearly such punishment would scarcely be felt by the violating collective. At the same time, the nonfulfillment of deliveries by the same 1.5 percent will mean that of the several hundred client plants four or more enterprises will be in serious difficulties.

Considering these circumstances, it is advisable to strengthen the incentives for fulfilling the deliveries, using for this the existing system of sanctions for violating economic contracts. But without fail this must be systematized and strengthened so as to make the sanctions irreversible and tangible. The tangibility of the sanctions can be increased by paying them from the material incentive fund of the violating enterprise while the inevitability of the penalties would be aided, in our view, by introducing a procedure whereby they would be automatically deducted from the payment account of the enterprise which violated its obligations without the party suffering the loss having to resort to their compulsory collection. The latter should have the right to receive funds from the deducted amounts to cover its losses in the material incentive fund as a consequence of the delay (underreceipt) of deliveries.*

Thus, the carrying out of deliveries should be a most important condition or factor determining the ultimate amount of the incentive fund. At the same time encouraging the carrying out of deliveries must be supplemented by encouraging the other indicators for the work of the enterprises and associations.

The problem is that the delivery of products in physical units, in characterizing the fulfillment of obligations to maintain the material and physical proportions set in the national economic plan, says nothing about the efficiency of manufacturing the product by the given production collective. And this is a very essential aspect in the efficiency of social production, particularly when it is a question of organizing cost accounting incentives. Moreover, under present-day conditions, when the quality factors of economic growth are coming more and more to the forefront, the ignoring of this aspect of efficiency in encouraging the associations and enterprises would be simply wrong.

In resolving the question, aside from all else, it is essential to proceed as well from an assessment of the overall possibilities for an incentive effect from the incentive system. Such systems obviously should be aimed at areas where there are particularly great opportunities for using internal reserves and there is the greatest scope for showing bold initiative and socialist

*In essence, here it is a question of the need for a sort of "bridge" ["zamykaniye"] in cost accounting incentives and sanctions in the economic incentive funds of the enterprises (associations). This is a very important and independent question going beyond the subject of the given article. We would merely point out that the trend toward such a "bridge" is now apparent in resolving other incentive questions, for example, in forming and using surcharges on the price for superior quality products.

entrepreneurship. Only here is it possible to fully realize all the advantages of the socialist management methods.

If the problem is viewed from this viewpoint, then it turns out that the "pure" encouraging of the fulfillment of deliveries has a significantly smaller base than the combined encouraging for carrying out contractual obligations and for increased efficiency of product manufacturing. For this reason it is no accident that the Decree of the CPSU Central Committee and the USSR Council of Ministers of 12 July 1979 makes provision for evaluating and encouraging the operation of production associations and enterprises depending not only upon the fulfillment of deliveries but also upon the growth of labor productivity, the improving of product quality and the increased total profit.

Of essential significance in increasing production efficiency and accelerating the introduction of scientific and technical achievements is the wide use in industry since 1982 of the indicator for the growth of labor productivity calculated for net (normed) product for assessing and encouraging production. This interests the production collectives not only in making better use of live labor, but also, and this is particularly important under present-day conditions, in being considerate of the results obtained in the previous stages of the production process, that is, for embodied labor. At the same time, an analysis of the new indicator makes it possible to establish that this is not the limit and that it has an additional and very important resource which can and should be put into service for socialist management.

Let us take a closer look at the output indicator for net product. The latter is ultimately the total of the wages and profit and its norm, per se, is calculated in the same manner. If we divide this total by the number of personnel in order to obtain the labor productivity indicator, then we will obtain:

$$\frac{\text{wages} + \text{profit}}{\text{personnel}} = \frac{\text{wages}}{\text{personnel}} + \frac{\text{profit}}{\text{personnel}} .$$

In other words, encouraging the labor productivity indicator calculated for net product comes down to encouraging the total of two indicators: average wages and profit per worker. Of course, this does not mean that the indicator to be stimulated and, respectively, the incentive can be increased by an unjustified growth of average wages without an actual rise in labor productivity. Without mentioning the control on the expenditure of wages in the form of the wage norm per ruble of product, we would point out that an unjustified rise in wages can be made only from profit and for this reason output per worker measured in net product as a whole will not change.

Consequently, the sole real source for increasing output for net product and along with it the incentive funds is an increase in profit calculated per worker. The more profit produced as an average per worker, the higher, with other conditions being equal, the efficiency of his labor and for this reason the more this labor must be encouraged. But if this is the case, would it not be simpler to directly encourage a growth of profit calculated per worker?

Theoretically this last indicator is the result of correlating profit with the most important resource of society, the labor force, while the workers and

employees of the enterprises are the immediate creators of both the product and the surplus product.

The encouraging of enterprises depending upon the profit level calculated per worker makes it possible to carry out a number of tasks related to the efficient use of material incentives at the present stage:

- 1) To increase the incentive of the workers to economically consume live labor to increase its productivity and efficiency; such an interest stems both from the amount of profit (the numerator of the formula) as well as from the necessity of reducing labor expenditures for obtaining it (the denominator);
- 2) Here to maintain an incentive for the economic use of the means of production and this is manifested in a desire to increase profit by reducing current expenditures and amortization;
- 3) To reduce the number of simultaneously encouraged indicators; although there is a definite trend to increase their number, this is objectively caused by a desire to reflect in the incentive system as many aspects as possible of production efficiency. But still the broadening of their range can influence the possibilities of maneuver for the enterprises and the obtaining of an incentive by them due to carrying out the indicators which are "easier" for them under the given conditions to the detriment of the more important ones. For this reason, it is desirable as much as possible to reduce the number of simultaneously encouraged indicators. In the given instance, such conditions are found since in encouraging a relative indicator--profit calculated per worker--there is no need for the separate encouraging of an increase in the total amount of profit. Over the long run, as the relationship between product quality and the profit received by the enterprise (association) is strengthened, it is possible to give some thought to abandoning the separate encouraging of a quality indicator;
- 4) To improve the ways of resolving social problems. Inherent to capitalism is a distribution of profit according to capital. Naturally it may be expected that under socialism the distribution of net income should be correlated to the efficiency of live labor and not the "capital." For this reason, since the minimum efficiency of embodied labor has already been considered in the fixed rates for the payment for the use of capital, the remaining and basic portion of the net income (profit) should be distributed between society and the individual collectives in accord with the efficiency of live labor;
- 5) To improve the measurement of production efficiency, relying on the close link of the profit indicator calculated per worker with such indicators as the reduction in product costs, the growth of labor productivity and the increase in the sales volume. This link is more strongly apparent than with profitability.

The calculations made by us using the data from the statistical annuals "Narodnoye khozyaystvo SSSR" [The Soviet National Economy] as well as the materials from individual enterprises have shown that in all instances the closeness of the tie for the indicators of product sales, labor productivity and costs with profit per worker is much higher than with production profitability. Also high are the absolute values for the coefficients of a paired

correlation for these indicators with profit per worker, particularly for the all-Union information, where they fluctuate on a level of 0.93-0.97, that is, they almost approximate one, while for profitability the corresponding coefficients do not exceed 0.2.

All of this taken together means that changes in profit calculated per worker closely depend upon the dynamics of the other indicators for production efficiency, they are of the same type as them and they express their development trend. Here profit per worker plays such a role better than does profitability. Consequently, in encouraging the growth of profit calculated per worker, we at the same time will bring about an improvement in the other economic indicators such as production volume and product sales, labor productivity and costs. The advantages of such a solution to the problem are obvious.

Analogous advantages in encouraging increased production efficiency can be found in encouraging the enterprises and associations to increase profit per ruble of wages. In extrapolating from the above-given transformation, it is not difficult to show that output in relation to net product can be expressed as follows:

$$\frac{\text{wages}}{\text{personnel}} \left(1 + \frac{\text{profit}}{\text{wages}} \right).$$

In other words, encouraging the growth of labor productivity in terms of net product can be replaced by encouraging the profit per ruble of wages (since an increase in the other element of the obtained expression--average wages--should not be encouraged). Here it is essential to bear in mind that to a certain degree through wages there is a reduction in labor, since the more complex labor is paid for at a higher rate and for this reason the quotient from dividing profit by the paid wages describes approximately the same aspects of efficiency as profit calculated per worker but only considering the worker skills. Moreover, the correlating of profit with wages will also help to increase the interest in the economic expenditure of wages.

The indicator of profit calculated per ruble of wages in relation to one article or even to all products is nothing more than the profitability level calculated in relation to wages, and in this capacity it can also be used in calculating prices for new articles. This serves to standardize the methods employed in forming incentive funds and in price formation.

As is known, normed profit in setting the prices for new articles is presently set in a percentage of costs without the direct material expenditures. Here a dual aim is pursued. On the one hand, to exclude the influence of the costs of materials on the amount of normed profit and thereby to help in reducing the material intensiveness of the product during the stage of its designing. On the other, to give certain advantages to highly mechanized enterprises with low labor and wage product intensiveness and with a high proportional amount of amortization and other indirect material expenditures in its costs by including these expenditures in the basis for figuring profit. It is not difficult to see, however, that the realization of the first task to some degree is impeded by the second, since the adding of profit to even a portion of the material expenditures can scarcely help to increase an interest in reducing them.

We feel that such a contradiction could be avoided if in the price formation calculations we would switch over to a profitability indicator in relation to wages. As for solving the second problem, statistical research shows that, in the first place, the deviations in profit distribution by the two methods are relatively small (the mean square deviations are on the order of 9-10 percent), secondly, there is a rather close tie between both indicators of profitability (the coefficient of the paired correlation in various cases fluctuates within the limits of 0.968-0.995) and thirdly, there is generally no point in creating artificial advantages for the highly mechanized enterprises, since due to their better access to capital they much more quickly (by approximately 2-fold) increase their profit and thereby compensate for its initial shortage at the moment of calculating the price.* At the same time, the use of profit in relation to wages simultaneously in the calculations for price formation and the figuring of incentive funds will make it possible to utilize this indicator comprehensively and make the relation between the successes of the collectives and their remuneration more apparent.

The indicator of profit calculated per worker and per ruble of wages will also aid in more effectively solving the problem of norming material resources and their economic consumption. As is known, a well-organized norm system and material expenditure norms which are progressive and constantly reflect the development of equipment, production methods and organization are an important condition for carrying out a strict economy and thriftiness. Hence the attention which is given to this question on all levels of management. Here it is essential to bear in mind the particular features and specific nature of the leadership over each element of the system. For example, on the internal plant level, these norms should be particularly detailed and encompass all articles and parts, if possible, for each expended resource. The plant and shop services are involved with the methods of organizing production, working out production methods and to a significant degree designing new articles. Who but they can know the opportunities for reducing expenditures on manufacturing the product at each work area and in each operation? The norms elaborated considering the optimum use of existing resources play a crucial role in their economic employment at each enterprise, in each shop and at each section.

Of great importance for systematizing and developing the norm system and for strengthening its impact upon reducing product material intensiveness will be the implementation of the decree of the CPSU Central Committee and USSR Council of Ministers adopted in July 1981 and entitled "On Strengthening Work in the Area of Saving and Rationally Utilizing Raw Materials, Fuel-Energy and Other Material Resources" [2, pp 3-4]. The setting of norms for the expenditure of the major types of materials, fuel and energy in physical units per unit of product in the five-year and annual plans of the ministries and departments, the informing of the associations and enterprises of these norms, the elaboration of nomenclature of the most important material-intensive product types

*The survey was made using materials of three all-Union production associations of the Ministry of Electrical Equipment Industry for 1977-1978 and 1979 and covers more than 70 production associations and enterprises.

(predominantly in series, large-series and mass production) for which consumption standards for the basic types of material resources should be set on a centralized basis, the setting for enterprises of quotas to reduce product costs and within these quotas a limit for material expenditures in monetary terms per ruble of product and the measures to encourage the carrying out of these norms and quotas--all of this, undoubtedly, will contribute to the economic consumption of resources.

At the same time, an increased role played by the centrally set norms in the economy of the enterprises, of course, does not mean that these norms can encompass the piece rates for the expenditure of each type of resources for each article, particularly in small-series and single-unit production (namely these types of production prevail in the nomenclature of industrial products). Let us start from the fact that there are excessively many such standards (their total will obviously equal the product of the number of types of articles manufactured by industry by the average number of materials going to produce each article, that is, this is measured by numbers with eight or nine zeroes). It is uncertain who could work them out and how and when necessary revise them and promptly consider the achievements of technical progress, the complicating of the product, the appearance of new materials and so forth. References to computers in and of themselves cannot be taken seriously, for the machines calculate what people feed into them and the elaboration of the standards and particularly their firm setting is in no way a formal or technical process. Before setting a consumption standard for one or another material, it is essential to analyze the existing production methods for the product, disclose possibilities for improving these, for replacing scarce and more expensive materials with cheaper and more accessible ones, to reflect the achievements of progressive enterprises and so forth. No computer will itself produce such a non-formal analysis and attempts to create a universal algorithm for such retrieval would scarcely be efficient and this problem as yet has not even been posed by anyone.

Nor is the set goal fully achieved by the selective norming of the consumption of individual resources, that is, the setting of quotas to reduce the consumption standards for certain materials in the absence of such quotas for the remaining types of resources. Although informing the enterprises of centralized quotas for an average reduction in such selective consumption standards helps to save on expenditures in terms of the planned items in the nomenclature of materials (and at present this nomenclature, as is known, will be enlarged), still practice shows that a saving in consumption for an item accounted for in a quota can occur here due to an increase in the expenditures of other materials which certainly need not be less expensive or scarce. Here the total amount of material expenditures can even rise, that is, the end and basic goal of norming--a general rise in production efficiency--will not be achieved. This manifests the shortcoming of all the particular efficiency indicators, that is, the possibility of fulfilling and improving them at the expense of other analogous indicators with a slow rise, and in individual instances, even a drop in overall production efficiency. For this reason, in evaluating and encouraging the enterprises and associations, generalizing indicators for their operations are indispensable. In endeavoring to improve these indicators, the enterprise collectives will save resources, reduce the proportional expenditure of materials per unit of product and useful effect, improve expenditure

norming and so forth. Hence, the profit indicators calculated per worker and per ruble of wages, in being generalizing efficiency indicators, better solve the problem of saving materials (combined with other economic levers) than just their direct norming which is not always sound and is by necessity selective.

At the same time, the designated indicators for production efficiency are also not free from shortcomings. Thus, the profit growth factors do not always depend upon the enterprises. For example, profits can be increased by structural shifts, by the unjustifiably high profitability of individual products and so forth. Incidentally, this shortcoming is not specific for profit and is inherent to all the cost indicators. Its overcoming or at least mitigating is possible by employing various analytical procedures for "purging" profits of the influence of the factors which do not depend upon the enterprises as well as by figuring the incentive funds on a basis of the principle of an accelerated rise in production efficiency in comparison with an increased incentive for achieving this. This stems directly from the instructions of the 26th CPSU Congress that "production results should rise more rapidly than expenditures on it" ("Materialy XXVI s"yezda KPSS," p 40).

Another shortcoming is due to the refusal to correlate profit with the value of enterprise productive capital (as occurred in turning to the production profitability indicator). This can lead to a lessening of the interest in making better use of this capital. But, in the first place, the profitability indicator in this sense did not provide the results expected from it as is shown from the experience of the last 15 years. Secondly, the encouraging of the more efficient use of fixed capital can be substantially strengthened on the basis of the new procedure for paying the capital payment and for profit distribution.

As is known, the decree of the CPSU Central Committee and the USSR Council of Ministers of 12 July 1979 provided that the payment for surplus capital should be paid from that portion of the profits earmarked for the needs of the associations and enterprises and, conversely, the total unpaid amount for the saved capital should go for these needs. The designated procedure can be concretized in the following manner.

In particular, initially the total budget payments should be made according to a special scale. The profit balance remaining after this is earmarked for forming the economic incentive fund, the capital payment and certain other planned expenditures. With such a procedure for distributing profit, each change in the amount of the capital payment will be reflected comparably more strongly in the incentive funds than at present, since any increase in the capital payment will cause an equal subtraction from the incentive funds and its proportional amount in relation to the remaining profit reduced by it will greatly increase. At present the fluctuations in this payment are insignificant and they virtually have no influence on encouraging the enterprise collectives.

As a whole it can be asserted that none of the existing measurements for the efficient operation of the enterprises performs its role flawlessly or is "ideal." Definite positive features and shortcomings can be noted for each. Yet of the indicators examined here, from the viewpoint of organizing material incentives

for the enterprises (associations) on their basis, the greatest advantages are obviously found in profits calculated per worker or per ruble of wages. It can be assumed that the use of these as incentive indicators will make it possible to raise the interest of the enterprise collectives in intensifying production and raising labor productivity, in making better use of existing resources, improving product quality and quickly introducing the results of technical progress, that is, it will help to carry out those major tasks which were posed by the 26th Party Congress.

Probably these indicators will be very suitable for many industrial sectors and subsectors, in particular, for machine building. In any event, the experimental introduction of an incentive system which is based upon profit per worker (or per ruble of wages) is extremely desirable. The use of these indicators without fail should be supplemented by encouraging the precise fulfillment of the plans both in terms of the evaluation indicators and particularly for deliveries as well as by the elaboration of the corresponding quantitative mechanism for the system's operation. In particular, such a mechanism should be based upon specially selected mathematical functions for incentives. These functions would ensure the regular nature of its growth as production efficiency is increased with the accelerated growth of the latter and the corresponding movement of both indicators in relation to the proportions deriving from the plan.

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STRENGTHENING ROLE OF ECONOMIC CONTRACTS BETWEEN MANUFACTURING PARTNERS

Moscow EKONOMICHESKIYE NAUKI in Russian No 3, Mar 82 pp 32-40

[Article by L. Mokeyeva]

[Text] Throughout the entire construction of socialism in our country there have been systematic efforts to make economic relations more efficient and to control them operationally by means of reserve funds to stimulate strict observation of contractual discipline. The socialist economic mechanism's effectiveness depends to a large extent on the enterprises' responsibility for fulfillment of their contracts. Such contracts cover subcontracting (within the same or different sectors of production), relations between production enterprises and material-technical supply and trade organs, between industry and construction, between the suppliers and users of energy, and between producers and the carriers that transport their products. As a result of the expanding division of labor, the volume of economic relations is growing at a faster rate each year than the aggregate social product. Parallel with the increasing influence of economic contracts on the economy's effectiveness, the "cost" of their possible breakdown, and the losses caused by such breakdowns in the production, supply and other sections, are likewise increasing.

In the mid-1960's a system was adopted under which nonfulfillment of the plan in terms of important listed products resulted in a reduction of the economic incentive funds by twice the amount of the shortfall; i.e., a shortfall of 1 percentage point in plan fulfillment meant a reduction of the economic incentive fund by 2 percentage points. In the case of listed products that did not belong among the important ones, it was possible to "compensate" for the shortfall in one product with the overfulfillment in another product. Practice revealed the flaws of this approach. It became apparent that incentives for plan fulfillment based on the volume of sales enabled the individual collectives to achieve the necessary results by delivering the products that were the most advantageous for them, supplying first of all the nearest customers and the requirements of their own central agencies, at the expense of relatively low-cost products, distant customers, and in the final outcome at the expense of the national economy itself.

In recent years, managers of industrial enterprises and supply officials have been paid bonuses that take into account the fulfillment of contractual obligations, pursuant to the Instruction of 17 August 1977.¹ According to this instruction, the entire sales plan of an enterprise is regarded as not fulfilled if the enterprise defaults on even a single contract. In such cases the

enterprise managers' bonuses are reduced, and no bonuses are paid at all if the contract violations exceed a certain limit. The introduction of this system has played a certain positive role and has stimulated some improvement in the fulfillment of economic contracts. Economic managers have become more forceful in scheduling production, in improving supply, in perfecting long-range and operational planning, etc.

Noting all these changes, we must nevertheless admit that they do not represent as yet a radical breakthrough in the observation of contractual discipline and, consequently, in the organization of economic relations. The proportion of enterprises that meet all their contractual deliveries is still limited. From January through May 1980, for example, only 57 percent of the enterprises operating under the system introduced in August 1977 attained 100-percent fulfillment of their contractual deliveries. During the first nine months of 1981, the production associations and enterprises of the Ministry of Petroleum Refining and Petroleum Industry, Ministry of Heavy and Transport Machine Building, Ministry of the Electrical Equipment Industry, Ministry of the Timber, Pulp and Paper, and Wood Processing Industries, and the Ministry of Light Industry failed to fully ensure deliveries of their output in accordance with the concluded contracts and confirmed orders. Thus practice shows that the mechanism of contractual responsibility requires further perfection.

Implementation of the 12 July 1979 Decree of the CPSU Central Committee and Council of Ministers USSR serves this purpose. It provides, among other things, for completing the conversion of the production associations (enterprises) to long-term economic relations; for developing the guaranteed complete supply of production associations (enterprises) on the basis of contracts that they conclude with the organs of Gosplan USSR; for converting the material-technical supply organs of Gosplan USSR to profit-and-loss accounting. Fulfillment of contracts has become an indicator that influences the formation of funds, and it reflects the evaluation of the work of an enterprise's entire collective. Every percentage point of shortfall in sales (based on contracts) reduces by at least one percentage point the economic incentive fund.² It is also specified that fulfillment of contractual deliveries must be taken into account in judging the All-Union and republic socialist competitions. A collective is not awarded the Red Challenge Banner or the first, second and third premiums if it failed to fulfill its delivery targets and obligations.³

The policy of further perfecting the economic mechanism has been confirmed and developed in the resolutions adopted by the 26th CPSU Congress. The resolutions define the need to improve production relations between industrial sectors and between individual enterprises; to raise the level of production specialization, cooperation and concentration; to strengthen profit-and-loss accounting in every possible way; and to increase the responsibility of economic managers for the fulfillment of contractual obligations. Special attention is devoted to the improvement of planning and, consequently, to the intolerability of unjustifiable corrections of the plan's targets.⁴ These statutes were developed further at the November 1981 plenum of the CPSU Central Committee.⁵ Adoption of the new Statutes on Deliveries of Capital Goods and Consumer Goods, introduced as of 1 July 1981, has had a favorable effect.⁶ We also wish to note that on 24 August 1981 a new Instruction on the Method of Accounting Fulfillment of the Targets and Obligations for Deliveries of Output and Goods in Accordance With the

Concluded Contracts was adopted and will become effective as of 1982. This Instruction applies to industrial associations (enterprises), and to the organs of material-technical supply and trade. In evaluating the activity of collectives it calls for taking the fulfillment of contracts into account, and for reducing the percentage of shortfall above which the managerial personnel of the associations (enterprises) completely lose their bonuses. A schedule of reductions and loss of bonuses is introduced that is obligatory for every enterprise. For nonfulfillment of obligations that are of particular national economic importance (the corresponding list of such obligations is confirmed by Gosplan USSR), managers lose their bonuses regardless of the percentage limit on shortfalls.⁷

For the elaboration of further specific measures in this direction it is necessary to analyze the accumulated experience with incentives for the participants of social production based on the fulfillment of economic contracts.

The changeover to the principle of providing incentives for collectives based on the fulfillment of delivery targets and obligations has occasionally intensified efforts to set low plan targets and to subsequently correct them downward. In conjunction with this it seems justifiable to change over to incentives based on the actual amount of the profit-and-loss income that will be relatively low when a soft plan is fulfilled, thereby penalizing through the ruble the setting of too low plan targets. Simultaneously it will be necessary to improve the work of the central planning and supply organs, because the enterprises accepting high targets will be forced to obtain the corresponding resources (to eliminate the so-called "air" in the plan), and to object to the issuance of funds only partially or with delay, and especially with the violation of the necessary parameters.

The new system of evaluating the work of collectives has made itself felt also in a certain increase of production inventories, which in many instances is regarded as a "shock absorber" against a breakdown of the contractual targets in the case of supply interruptions. This increase was accomplished by a relatively slow reduction of the consumption norms of raw materials and supplies for old production, by setting high consumption norms for new production, and by attempts to enlarge reserve stocks. All this jointly resulted in that inventories rose during the past 15 years at a faster rate than the aggregate social product.⁸

To prevent fulfillment of contractual obligations at the cost of forming excessive inventories, it is necessary to ensure the direct influence of the amount of working capital on the amount of profit that is retained and intended for payments to workers and for the development of production. The existence of such a linkage is important also to give the collectives an economic incentive for dividing inventories among the producers, supply organizations and users. Practice indicates that today production inventories at the users are the dominant. In the future the proportion of inventories of finished goods held by suppliers and concentrated in the sphere of distribution should increase. Suppliers of special-purpose products should maintain inventories corresponding at least to the transit norms. In the case of mass-produced goods when producers are unable to observe the transit norms, it is more advantageous to maintain inventories at the organs of material-technical supply, including some inventories in the form of freely marketable allocations. Naturally, users too should maintain some inventory, but it should not be large.

Perfection of the accounting of contractual obligations is of basic importance in strengthening the role of economic contracts. Contractual obligations are accounted as a running total for the year. Thus if things go smoothly during the year and the fulfillment of contractual obligations breaks down only during the last month of the year, such a breakdown will appear very modest. We obviously would obtain a more objective and practically more useful picture if a running total were available not only for the period to date, but also for the current month. Furthermore, it should be pointed out, fulfillment of contractual obligations is accounted on the basis of shipments dispatched, while sales are accounted as of the moment when the customers pay their invoices. As a result, these two indicators cannot be mutually reconciled. To overcome this situation it is obviously necessary to coordinate accounting, based on the payment of invoices and not on shipments dispatched. This approach reflects the user's attitude to the goods.

After the introduction of the indicator of plan fulfillment that takes the concluded contracts into account, there were attempts by suppliers to specify in the contracts quarterly, semiannual or even annual delivery "dates," which of course is inconvenient for the users, causing them considerable difficulties and losses. The new Statute on Deliveries of Capital Goods provides for even (monthly) deliveries as the rule for the contracting parties. The contracts often specify delivery of a consolidated, rather than a detailed, list of products; for example, delivery of suits, shoes, etc. But suits can be fashionable or nonfashionable; shoes, dress shoes or work shoes. Large-scale consolidation provides gaps for fictitious contract fulfillment.

The existing methods of accounting contract fulfillment create certain difficulties for the work of various collectives. These methods are easier for the collectives that produce one type of product, and more difficult for the collectives producing a variety of products. Equal effort in this respect should be ensured by differentiating the amount of profit and the prices of the products, to ensure that production in small series and custom production are not less advantageous for the producer than large-series production.

When the activity of collectives is evaluated on the basis of the indicator of contract fulfillment, all deliveries and items appear to be equal. For the national economy, however, their importance is not identical. Here it is important to note that the absence of certain products creates a greater loss than the absence of others. On this basis it is necessary to orient the collectives primarily on the fulfillment of orders that are especially valuable for the national economy. This can be accomplished by means of penalties for default, commensurately with the amount of damage caused. As a rule, the penalties will be higher for failure to fulfill the more important items in the contract, and lower for the less important items.

To this comment we should add that, according to the rules now in force, a contract is considered to be in default regardless of whether the degree of nonfulfillment is insignificant or very significant. In any case, nonfulfillment results in the same unfavorable conclusions regarding the work of the collective. As a result, the collective that departs even insignificantly from its contractual obligations has no material self-interest to successfully fulfill

all its other obligations, some of which might be far more important. Preferable would be a situation such that each subsequent violation would increase the indicator of nonfulfillment and commensurately reduce the collective's economic incentives. This again illustrates the need for penalties that in principle are levied separately for each default, but increase in amount with each successive default.

The levying of fines to compensate for damages is prescribed in many legal documents, including the aforementioned Statute on Deliveries of Capital Goods. But actually these sanctions are applied only occasionally. All the sanctions jointly compensate for only 0.15 percent of the damages caused.

As a rule, sanctions are levied in the form of a relatively low, legislatively fixed percentage of the value of the output: in the case of late shipments, 8 percent of the default from the first day of delay; in the case of rejected or incomplete deliveries, a 20-percent fine; if products of a higher quality grade are judged inferior, the fine is increased to 30 percent. In addition, in the case of products judged inferior the producer pays a fine equal to 200 percent of the price reduction for inferior quality, but not more than 20 percent of the product's price before the price reduction. In the case of capital goods that require field repairs by the supplier, the fine is 5 percent; for consumer goods, 2 percent (not counting the cost of the repairs performed by the supplier or for his account). There is a 12-percent forfeiture for late shipments of equipment to projects scheduled for startup; of output specified in the plans for intersectoral subcontracting deliveries; to enterprises with seasonal production during their procurement, processing or production of perishable goods; to enterprises on deliveries of output by the Gosplan USSR system; to warehouses of Goskomsel'khoztekhnika; and to consumers in regions that have priority in supply. On the complaint of a material-technical supply organ, moreover, the producer who violates priorities pays into the state budget a fine equivalent to 50 percent of the value of the output shipped in violation. If design defects are not corrected, 8 percent of the value of the output is forfeited. The contracting parties may increase these sanctions by mutual agreement, except the penalty for late payment. A limitation of responsibility is not permissible.

The aforementioned Statute on Deliveries of Capital Goods states that damages may be claimed in the amount not covered by the forfeiture, fine or penalty. Evidently the statute's double approach (both forfeiture and damages) is based on the fact that the forfeiture may not cover the damages. After all, forfeiture is unnecessary when there is full compensation for damages. There is nothing to claim over and above the damages.⁹

The weak role of the existing mechanism of sanctions is due to the dominant position of the supplier relying on the fact that his product is in short supply. A number of economists have even embraced the notion that this situation is law-conforming and eternally valid. There have been statements to the effect that the development of specialization seems to make enterprises more dependent on supply than on sales.¹⁰ Moreover, supply always converts to a set of noninterchangeable utility values in kind, whereas the absence of the money due from some of the customers can be covered by the payments from other customers. Merely among its series-produced products, for example, the Kiev Association of Relays and Automation Devices has over 10,000 standard items, and

the output is shipped to several thousand customers. The Kaliningrad experimental plant of KPO [Cooperative Producers' Society] Soyuzgazavtomatika had economic contracts with 200 users in 1981. However, all this does not mean that suppliers have some a priori and nearly law-conforming advantages over users. In an economy that is in equilibrium, sale and purchase are equally difficult actions. To the extent that shortages are overcome, therefore, users can apply sanctions against suppliers.

An obstacle to introducing sanctions that carry weight is the fact that when the overall plan is not fulfilled, suppliers are able to choose desirable customers. They have a freedom of choice also in distributing their output in excess of the plan that is not subject to market allocation. The next obstacle is the frequent changing of the plans from above, the setting of additional targets, and the downward correction of the plan indicators. In sum, there is no product left for some users. And specifically who these users are depends practically on the suppliers who prefer their "convenient" customers.

This is why even meager fines, not to mention meaningful ones, have been imposed until recently only for one out of every ten contract violations. Pursuant to the 12 July 1979 Decree of the CPSU Central Committee and the Council of Ministers USSR, the fines have become obligatory, i.e., the fines are payable independently of the contracting parties' wishes and without the mutual offsetting of claims. Whoever fails to file a claim for late delivery or short shipment is liable to a fine that flows into the state budget. But we wish to emphasize once again that the obligatory nature of the sanctions would be more effective if the sanctions were imposed in the amount of the damages.

Refusal to employ fines not in accordance with their intended purpose will make for a more active application of fines. In our opinion, specifically the situation is unjustifiable that the fines which the injured party receives must be transferred into the state budget. Thus trade as a branch retains only 5 percent of the difference between the total fines received and the total fines paid, while 95 percent is transferred into the state budget. The following example illustrates what this means in practice. In 1978, the metropolitan department store "Moskva" rejected nearly 3.0 million rubles' worth of output; the producers of the rejected products were obliged to pay fines totaling 204,000 rubles into the state budget; at the same time the department store suffered a loss because it did not recover even the fees paid to the commodity appraisers and the costs of filing its claims.

It is likewise important to solve a number of problems related to the definition of damages and determination of their amount. According to the Statute on Deliveries of Capital Goods, damages include the incurred expenses and lost income. Starting out from this definition, damages evidently should include also the fines that the user is forced to pay for his failure to deliver to his customer, who in turn suffers a loss because of his inability to deliver to the next technological link. If two suppliers defaulted on delivery (perhaps of two different items), the compensation for damages should be divided between them proportionately with the values of the nondelivered products.

From the damages the amount should be deducted of the resources available from the users' normal inventories, and also from the organs of Gosstab USSR when they conclude with the associations (enterprises) contracts for guaranteed

complete supply which, in addition to their basic purpose, provide also for the mutual sale of output to users in cases when the suppliers with whom the users maintain direct economic relations default on deliveries.

We believe that the contracts should include a number of other innovations as well. At present 50 percent of the economic incentive fund withheld earlier is restored in cases when the delivery dates specified in the contract are missed but delivery is nevertheless made during the same calendar year. In our opinion, this is not entirely lawful. The output not shipped originally should now be shipped as if under a new contract and within a new time limit. If this time limit too is missed, then obviously the sanctions should be repeated.

According to the new instruction issued on 24 August 1981, the economic incentive fund's planned volume must be increased by 10 percent if the contracts are fulfilled. As we have pointed out above, practice indicates that this system has not produced the desired results so far. The fund is increased from the centralized reserves of the superior sectoral administrative organs, or from the own profit in excess of the plan if the reserves are inadequate for this purpose. To ensure that the aforementioned resources for bonuses are earned "below" and do not come "from above," it is advisable to pay bonuses within the limits of the profit-and-loss income's increase.

Among the questions related to compensation for damages, there is the question of what sources this compensation should be paid from. The variants considered in the literature reduce to payment charged to the production cost, to profit, to the profit-and-loss income, to the stimulation funds or to the economic incentive funds. This question should be solved in the same manner as the coverage of other cost overruns. The necessary uniformity is lacking for the time being. Cost overruns in the case of raw materials are charged to the production cost. Cost overruns in the case of wages are reimbursed from the economic incentive funds. Payment for equipment not installed is charged not to the overall profit but to the profit-and-loss profit, in a fixed proportion; there are no provisions for it in the plan and it is reflected only in the report. In our opinion, it is expedient to charge excessive expenditures to the production cost, with the subsequent automatic reduction of the profit, and of the stimulation funds that are a function of the profit. The compensation for damages should be traced from general payment by the enterprise as a whole, to the persons through whose fault the fine had to be paid; the corresponding organization of internal profit-and-loss accounting should facilitate this. It would seem that in cases when the damage caused by contract violations is substantial, it should be reimbursed not only by reducing the economic incentive fund, but also from the pay of the persons responsible, within certain limits.

At present fines are being paid by the enterprises last, after all the other payments due. On the whole, the transfer of fines is held up for a long time. If there are insufficient funds on the supplier's current account, it would be better to transfer the fines to the customer's account against bank loans provided at higher interest rates, as this is being done in paying invoices for raw materials, supplies, etc. Only then will timely compensation for damages become realistic, providing normal profit-and-loss accounting conditions for the operation of the injured party, and only then will the evaluation of the contract violator's activity be fully substantiated.

Persistence of a considerable volume of unfulfilled contractual obligations can be explained to no small extent by the fact that the sanctions for a given contract violation do not prevent the enterprises from obtaining larger bonuses under the so-called special incentive systems, of which there are at least 20 in industry alone: for fuel and power conservation, for producing consumer goods from waste materials, for designing and introducing new technology, for collecting scrap metal, etc. The payments received (if converted into rubles of additional profit) are greater than the costs of fulfilling the contracts and meeting the other indicators for evaluating the basic activity of the enterprises. Until the incentives for all types of activity are properly coordinated with their real effectiveness and statistical significance, the collectives will find various ways of covering the losses from contract default.

The responsibility of the organizations supplying electric power is unjustifiably low at present. The present system of regulating financial responsibility for plan fulfillment between industry and construction cannot be regarded as proper. According to the data of the BeSSR Ministry of Industrial Construction, for example, the sanctions against a customer through whose fault the plan for placing new capacities in operation failed may cover at most 7 to 8 percent of the losses incurred.

Special mention should be made of the need to perfect economic relations between industry and transport. Railroad regulations specify the railroads' limited responsibility. For example, railroad organizations unilaterally determine the loading and unloading time, which in itself causes nonreimbursable losses for their customers. The responsibility of the railroads for their failure to provide railroad cars is determined in accordance with the quantity and weight of the freight shipped, whereas suppliers must pay fines whose amount depends on the value of the merchandise shipped. In the case of short shipments the railroad pays compensation for the value of the goods not delivered through the railroad's fault, while suppliers, as already noted, pay a fine equal to 20 percent of the value of the entire product. Some idea of how this works can be gained from the following practical example. An enterprise shipped a mining combine worth 30,000 rubles. The consignee did not receive parts valued at 1.22 rubles. The claim against the railroad was limited to this amount, but the supplier was obliged to pay a fine of 6000 rubles (which did not cover all the damages). If economic partners are to be placed on an equal footing, neither one of them must be allowed to retain an unjustifiable advantage over the other. It does not seem possible to solve this problem without increasing the financial responsibility of the transportation organizations for nonfulfillment of the transportation plans reconciled in accordance with the joint recommendation of Gosnab USSR, Gosplan USSR and the State Board of Arbitration attached to the Council of Ministers USSR, as specified in the 12 July 1979 Decree of the CPSU Central Committee and the Council of Ministers USSR.¹¹

The financial responsibility of the customer, of the supplier of equipment, and of the subcontractor installing it is not coordinated. Short shipment of the equipment is liable to sanctions for default that amount to between 5 and 7 percent of the cost of the equipment (but not more than the installation cost); but at the same time the subcontractor who because of this holds up the commissioning of the investment project must pay much higher punitive interest to the bank.

Moreover, the mechanism of the suppliers' mutual responsibility should be supported by a mechanism of their mutual economic self-interest. To this end the 12 July 1979 Decree of the CPSU Central Committee and of the Council of Ministers USSR specifies that in construction a general system be introduced under which the customer pays the general contractor 5 percent of the profit anticipated for the project if the construction time is shortened (but not more than 0.5 percent of the budgeted construction and installation cost for each month by which the construction time is shortened). These payments flow into the stimulation funds of the enterprises participating in the construction project. The scope of surcharges for highly effective new products has been extended to include all industrial technical products equal to the best domestic and foreign models. Depending on the effect, the surcharge ranges from 0.5 to 1.25 of the standard profitability (but not more than 70 percent of the effect).

These were some of the possible directions for changing the system of evaluating the activity of industrial enterprises (associations), with due consideration for the fulfillment of their contractual obligations.

FOOTNOTES

1. Cf. "Instruction on the Manner of Accounting the Fulfillment of Delivery Targets and Contractual Obligations for the Purpose of Setting the Bonuses of Managers, Engineers, Technicians and Employees at Industrial Production Associations and Enterprises and at Supply Organizations," EKONOMICHESKAYA GAZETA, No 36, 1977, p 16.
2. Cf. "Sovershenstvovaniye khozyaystvennogo mekhanizma" (Perfection of the Economic Mechanism), a collection of documents, Moscow, 1980, pp 14, 33 and 149.
3. Cf. EKONOMICHESKAYA GAZETA, No 44, 1981, p 15.
4. Cf. "Materialy XXVI s"yezda KPSS" (Proceedings of the 26th CPSU Congress), Moscow, 1981, pp 50, 148 and 198.
5. Cf. L. I. Brezhnev's 16 November 1981 speech before the plenum of the CPSU Central Committee. "Postanovleniye Plenuma TsK KPSS" (Decree of the Plenum of the CPSU Central Committee), Moscow, 1981, pp 10, 11.
6. Cf. "New Official Data," EKONOMICHESKAYA GAZETA, Nos 20, 21, 1981.
7. Cf. "Instruction on the Manner of Accounting the Fulfillment of Targets and Obligations for the Deliveries of Output and Goods in Accordance with the Concluded Contracts, for the Purpose of Evaluating the Activity, and for the Economic Stimulation, of Production, Supply and Marketing, and Trade Associations, Enterprises and Organizations," EKONOMICHESKAYA GAZETA, No 44, 1981.
8. Cf. "Narodnoye khozyaystvo SSSR v 1980 godu" (The Soviet Economy in 1980), Moscow, 1981, pp 39 and 510.

9. Excessive sanctions are likewise questionable, as when it is recommended to set forfeitures and fines over and above the damages, without including them in the compensation for damages. This is the solution applied to deliveries of incomplete products or products of inferior quality.
10. Cf. in particular Ye. G. Liberman and V. P. Khaykin, "How to Protect the Interests of User Enterprises," EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOSTI, No 1, 1978, p 31.
11. Cf. "Sovershenstvovaniye khozyastvennogo mekhanizma," a collection of documents, Moscow, 1980, p 33.

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INDUSTRIAL DEVELOPMENT AND PERFORMANCE

SWISS PAPER ON UNMET SOVIET PLAN TARGETS, NEED FOR CHANGE

Zurich NEUE ZUERCHER ZEITUNG in German 8 Sep 82 p 12

[Article by Dr Hans-Hermann Hoehmann, Cologne: "Critically Low Growth Rates in the Soviet Economy"]

[Text] According to the recent report of the Moscow Central Statistical Administration on economic development and plan fulfillment during the first 6 months of 1982 (PRAVDA, 24 Jul 82), for the Soviet Union 1982 is the fourth in a succession of years marked by critically low economic development rates. The results have been so bad that in many economic sectors the targets set by the 11th Five-Year Plan can no longer be met.

Intensified Difficulties in Regard to Growth

The report clearly shows that all economic sectors have run into serious difficulties. The growth rate of industrial production declined to 2.7 percent--a new low. Even greater was the decline of the construction sector (down to 2 percent) and the transportation sector even showed an absolute decline. As regards agriculture, the picture remains unclear as long as the harvest results are not known. But even now it is apparent that the stagnation of livestock production will be protracted and since the next grain harvest will most likely again be unsatisfactory, this year (and that makes it the 4th year in a row) the agricultural sector is not expected to provide any growth impulses. However, since the nonagricultural sectors likewise show low growth rates, it is clear that the Soviet Union's present economic crisis can by no means be attributed primarily to the poor results of the agricultural sector. Rather, the principal cause is a coincidence--unprecedented in this form--of a chronic agrarian crisis, protracted stagnation of nonagricultural sectors, and foreign economic problems exceeding the accommodation capacities of the domestic sector.

In 1982, the share of the USSR's national income expended on accumulation and consumption will probably show a 2- to 2.5-percent increase. The growth rate of the Soviet GNP--calculated by the Western method--is unlikely to exceed 1.5 percent and will thus remain at the 1-percent level prevailing during the last 3 years. This underscores once again that the decline of the late 1970's cannot be attributed to short-term disturbances and thus cannot be said to be of a temporary nature, but that it signifies a drop of Soviet economic growth to a new, lower level.

No Hope of Catching Up

Obviously, the targets set by the 1982 plan are not being met. In the industrial sector, for example, the plan stipulated a gross production increase of 4.7 percent; in the agricultural sector, a production increase of over 10 percent, and in the transportation sector, a 3-percent increase in the freight transport volume. The national income expended was likewise expected to increase by 3 percent. The actual rates likely to be attained (industry: 2.5-3 percent; agriculture: 0-2.0 percent; transportation: -0.5-0 percent; national income: 2-2.5 percent) fall far short of the planners' expectations. That the semiannual report nevertheless speaks of a high degree of plan fulfillment, which according to the figures adduced was in many instances very high, is to be attributed to the fact that contrary to the original ideas the plan targets were reduced considerably. To be sure, this subsequent adaptation of the plan targets to the actual development of the national economy is necessary for restoring consistency in economic operations and for insuring the effectiveness of material incentives; at the same time, however, it shows that even the annual plan can no longer be considered an instrument of economic control.

The latter is even more true of the five-year plans. As is well known, the Reform Decree of July 1979 had stipulated that the five-year plan--broken down into annual plans--serve as a stable guideline for the enterprises. The developments during the current year show that this plan again proved a failure. In the second year of the medium-term plan, the actual economic results have fallen so far short of the plan targets--even more so than during the previous five-year plan periods--that the five-year plan goals are no longer attainable. This goes above all for the social product and for productivity. Here the growth rates attained in 1981 and 1982 are clearly below the targets set for these years by the five-year plan and they are also clearly below the average rates necessary for the fulfillment of the medium-term plan. To attain the five-year plan targets, correspondingly large increases would be necessary during the period from 1983 to 1985. In Soviet industry, for example, the average growth rate during 1981/82 amounted to 3 percent. The 11th Five-Year Plan provides for an average growth rate of 4.7 percent. Consequently, in the next 3 years the average annual growth of Soviet industrial output must be raised to nearly 6 percent to meet the five-year plan targets. In view of the current situation, this is absolutely impossible and raising the productivity growth rate in the remaining plan years to an annual average of 5.5 percent is likewise impossible. But precisely this will be necessary if the productivity increase stipulated by the 11th Five-Year Plan is to be effected.

Intensified Investment Activity

Characteristically, the developments in regard to national income expenditures differ from the aforementioned trends. In the investment sector, the 1982 target set by the five-year plan has already been exceeded and the average annual growth rate likewise exceeds the medium-term projections. This shows that the USSR's economic policy tries to compensate for the productivity gaps by means of capital formation exceeding the plan targets. However, this will be possible only if capital from the retail sector can be channeled into the investment sector or if producer goods are imported on a massive scale. In view of the stagnation of the living standard, the former will be feasible only on a limited scale. Consumption as a factor contributing to political loyalty and improvement of work motivation

has by now become so important that the retail sector can no longer be used as a stop-gap reserve for other purposes.

So far, the data concerning the development of retail trade turnover (as consumption indicators) have exceeded the targets set by the 11th Five-Year Plan: While the five-year plan had stipulated that the turnover be increased by a total of 8 percent by 1982, the growth rate actually attained amounted to nearly 10 percent. In view of the marked decline in the growth rates of consumer goods output, this turnover increase must be attributed to considerable price hikes. Thus the output of Industrial Group B (consumer goods) increased in 1981 and 1982 by an average of 2.9 percent (plan target: 4.7 percent). Light industry expanded by 1.5 percent (plan target: 3.5 percent). The corresponding figures for the food industry are 2.5 percent (actual result) and 4.2-4.7 percent (plan target). The durable consumer goods sector attained a growth rate of 4.9 percent, whereas the plan had stipulated a rate of 6.9 percent.

Summing up, one can say that many sectors of the national economy will not be able to meet the targets set by the 11th Five-Year Plan, nor will they succeed in effecting the desired breakthrough to an intensive development of the national economy. The bottlenecks revealed by the analysis of the draft plan (productivity, investments, energy, agriculture, and consumer goods) are fully evident now and confront the USSR's economic policy with serious adaptation problems.

Table. Indexes of the USSR's Economic Development

(1) Jährliche Wachstumsraten in %						
	(2)	1981	1982	1981-82 (Plan) ¹	1981-82 (Ist) ²	1981-82 (Plan) ³
Industrie	(2)					
Bruttoproduktion	(3)	3.4	2.7	4.0	3.0	4.7
Gruppe A	(4)	3.3	3.0	4.0	3.1	4.6
Gruppe B	(5)	3.6	2.2	4.0	2.9	4.7
Arbeitsproduktivität	(6)	2.7	2.0	3.4	2.3	4.2
Bauwesen	(7)					
Bau- und Montagearbeiten	(8)	1.8	2.0	n.a.	1.8	n.a.
Arbeitsproduktivität	(9)	2.0	2.2	2.7	2.1	2.8
Transportwesen	(10)					
Gütertransport	(11)	2.3	-0.5	3.0	0.8	3.0
Verwendung	(12)					
Nationaleinkommen (verwendet)	(13)	3.4	2.1	3.0	2.2	3.1
Staatl. Bruttoanlageinvestitionen	(14)	3.0	3.0	1.6	2.3	1.0
Einzelhandelsumsatz	(15)	4.4	5.0	3.9	4.5	4.2
Verteilung	(16)					
monatl. Durchschnittslöhne der Arbeiter und Angestellten	(17)	2.1	2.7	n.a.	1.4	3.8

Key:

- | | |
|------------------------------|---|
| 1. Annual growth rates (%) | 10. Transportation sector |
| 2. Industry | 11. Freight transport |
| 3. Gross output | 12. Utilization |
| 4. Group A | 13. National income (expended) |
| 5. Group B | 14. Gross public investment |
| 6. Labor productivity | 15. Retail turnover |
| 7. Construction sector | 16. Distribution |
| 8. Construction and assembly | 17. Average monthly pay of workers and salaried employees |
| 9. Labor productivity | |
- Footnotes in the table: 1. Semiannual figures as forecast data for the entire year. 2. Targets set by the 11th Five-Year Plan for 1981 and 1982. 3. Expected. 4. Average growth according to plan decree. 5. Necessary for meeting the targets set by 11th Five-Year Plan.

ECONOMIC MODELING AND COMPUTER TECHNOLOGY APPLICATION

CLASSIFYING, CODING, STANDARDIZING FINANCIAL DATA

Moscow FINANSY SSSR in Russian No 7, Jul 82 pp 53-55

[Article by Candidate of Economic Sciences A. N. Tolstikov: "Classification, Coding and Standardization of Financial Documents"]

[Text] In line with the creation of the Automated System of Financial Calculations in the USSR Ministry of Finances it has been essential to carry out a certain systematization and transformation of the financial documents in order to prepare them for computer processing. The task is to work out a standardized system of financial documents (USDF) and one of the first steps in carrying this out is the classification and coding of these documents.

Let us view the USSR Ministry of Finances as a control system in which there is the transforming of information in the aim of performing management functions, including: planning, accounting, reporting and control.

The planning function includes the drawing up of the initial plan, that is, the drafts and the final variations of the USSR State Budget, the financial plans and the expenditure estimates.

The accounting and reporting are information on the state of the controlled objects and this information is termed feedback.

Control is the impact of the control element on the objects of control (the inferior financial bodies, the ministries and departments) in the process of fulfilling the plans.

Since the results of the management process are recorded in uniform groups of documents, in our opinion they must be classified according to the control functions. Such a classification coincides with the traditional dividing of documents within the USSR Ministry of Finances and corresponds to the principles in the functioning of an automated control system. On the basis of this, considering the sources for obtaining the documents (the objects of control), it is possible to isolate five subclasses of standardized documents: 1) budget planning documents; 2) documents related to plan changes; 3) bookkeeping documents on the carrying out of budgets; 4) bookkeeping reporting of the enterprises and economic organizations; 5) financial and statistical documents.

The subclass "Budget Planning Documents" includes all levels of budgets, the analytical tables, calculations for the draft budgets, the financial documents for the budget-supported institutions (expenditure estimates), that is, all the planning documents which are initially worked out in the form of drafts and then are analyzed and adjusted and finally approved for execution.

The following subclass "Documents Related to Plan Changes" contain information on the decisions adopted by the superior financial body. In the process of control ordinarily two types of decisions are taken: the first alters the previously set goal and the second is aimed at rectifying arising deviations from the plan (the approved budgets and other budget-planning documents). As a result of considering the changes or incorporating them in the approved budgets, expenditure estimates and financial plans, new documents appear with the indication "Adjusted."

In terms of the number of document forms this is the smallest subclass but it must be made independent due to the importance of its role and contents as well as due to the large amount of documents appearing on the basis of these forms.

The following three subclasses have one common feature which is accounting and reporting, but they differ in terms of goals, tasks and sources. The subclass "Bookkeeping Documents on Carrying Out the Budgets" includes: the primary, accounting and reporting documents on the carrying out of all levels of budgets, the primary, accounting and reporting documents on state income as well as the primary, accounting and reporting documents of the budget-supported institutions. The subclass "Bookkeeping Reporting of Enterprises and Economic Organizations" brings together the report documents on the basic operations of the production associations (combines), the industrial enterprises and specialized forms of bookkeeping reporting on the enterprises and organizations in the various national economic sectors and types of activities, in addition to the bookkeeping reporting of the individual ministries and departments. This is the largest subclass in terms of the volume of document forms. As for the subclass "Financial and Statistical Documents," its documents are received through two channels: the first is the financial system in which the documents relating to state income, state insurance and so forth are formed while the second is the system of the USSR TsSU [Central Statistical Administration] from which are received documents containing information on the production of industrial products, product costs, new equipment and so forth.

In addition to the financial documents the USSR Ministry of Finances and the ASFR [Automated System of Financial Calculations] receive documents from the external control systems, including: the USSR Gosplan, the USSR TsSU, the USSR Gosbank, the USSR Stroybank, the ministries and departments. These documents have been basically standardized and are included in the following standardized documentation systems of the State-Wide System for the Collection and Processing of Information: planning (the USSR Gosplan), monetary payments, statistical reporting, documents on price formation and trade, foreign trade and for material-technical supply. Within these systems is the Standardized System of Financial, Primary and Reporting Bookkeeping Documents of the Budget-Supported Institutions and Organizations as elaborated and approved by the USSR Ministry of Finances in 1975. However, it must be said that since the USSR Ministry of Finances has not standardized all its documents, at present it is

essential to accelerate the elaboration of the standardized forms for financial documents. An organizational step in this direction has already been taken as a group for standardizing documents has been organized at the Main Computer Center [CVTs] of the USSR Ministry of Finances within the Department for Information Support of the ASFR and this group has already started to work.

The classification includes the coding of forms and documents. A nonrepeating digital code is assigned to each document form. This code identifies the form. The codes can be ordinal and classification. The latter reflect in their structure the adopted classification system. A 7-digit classification code with the following structure has been adopted for designating the forms of financial documents:

1	2	3	4
XX.	X.	X.	XXX.
1--class of document,			
2--subclass of document,			
3--group of document,			
4--ordinal number of form.			

The given length of the codes and their structure are employed in the Union-Wide Classifier of Management Documents. It includes the above-mentioned standardized document systems. The first two digits are the distinguishing features of these systems. The code 55 has been chosen to designate the standardized system of financial indicators.

Let us give the structure of the classifier for financial documents (see the table on the following page).

In this system of classification and coding, the individual form of documents, for example, "Summary Plan for the Receipt of State Income," has the code number 55 12 031 and this indicates that it is put in the class "Financial Documentation" (55), the subclass "Budget-Planning Document" (1), in the group "Calculations for Drafts of the Union Budget and Union Republic State Budgets" (2) and as the ordinal number of 031.

For processing the information using computers, it is essential to code not only the forms but also the documents which are created on the basis of the forms. To code a document means to assign to it a number of codes which would create a nonrepeating set of digits. Since the document is a form filled out with data, the first part of the document's code comprises the code of the document's form. Its second component is the organization code or the code for the compiler of the document, while the third is the period of time for which the indicators have been set or the date of filling out the document. Thus, the document's code is formed of code blocks which are located on the front (heading) of the document. As a rule, this is sufficient for identifying the financial document.

For individual types of documents it is advisable to give additional, classification features which in certain instances are also essential for identification. One such document is the expenditure estimate. There are individual and summary estimates compiled by the same organization (by the ministry) for the same

No.	Name of Subclass, Groups	Classification Level	Code
1	2	3	4
1	Budget-planning documents	Subclass	55 10 000
1.1	Budgets and analytical tables	Group	55 11 000
1.2	Calculations for drafts of Union budget and Union republic state budgets	Group	55 12 000
1.3	Calculations for draft budgets of ASSSR, kray, oblast, city	Group	55 13 000
1.4	Calculations (control figures) for draft budgets of rayons, cities, rural and settlement budgets	Group	55 14 000
1.5	Financial documents of budget-supported institutions (estimates of expenditures and calculations for them)	Group	55 15 000
2.	Documents on change in plans	Subclass	55 20 000
3.	Bookkeeping documents on carrying out budgets	Subclass	55 30 000
3.1	Primary and accounting bookkeeping documents on carrying out budgets	Group	55 31 000
3.2	Bookkeeping reporting on carrying out budgets	Group	55 32 000
3.3	Primary, accounting and reporting bookkeeping documents on state income in financial bodies	Group	55 33 000
3.4	Primary and accounting bookkeeping documents of budget-supported institutions	Group	55 34 000
3.5	Bookkeeping reporting of budget-supported institutions	Group	55 35 000
4.	Bookkeeping reporting of enterprises and economic organizations	Subclass	55 40 000
5.	Financial and statistical documents	Subclass	55 50 000
5.1	State income	Group	55 51 000
5.2	Personnel work	Group	55 52 000
5.3	Control-auditing work	Group	55 53 000
5.4	State insurance	Group	55 54 000
5.5	Assay inspection	Group	55 55 000
5.6	Finances	Group	55 56 000
5.7	Personnel	Group	55 57 000
5.8	Production of industrial product	Group	06 06 000 ¹
5.9	Technical-production reporting	Group	06 06 900
5.10	Labor	Group	06 04 000
5.11	Costs	Group	06 06 800
5.12	Capital construction	Group	06 08 000
5.13	New equipment	Group	06 05 000
5.14	Material-technical supply	Group	06 09 000
5.15	Transport	Group	06 11 000
5.16	Science and culture	Group	06 13 000

¹ 06--Code of standardized system for report-statistical documents (USSR TsSU [Central Statistical Administration]) to which the below-given groups of documents belong.

period of time. In order to distinguish them, it is essential that the given feature be incorporated in the document's code: "individual"--1, "summary"--2.

One must proceed in an analogous manner with the "Budget" document for which the type of planning is an additional feature with the designations:

Preliminary draft budget (or draft budget for consolidated indicators)	1
Draft budget	2
Approved budget	3
Adjusted budget	4
Scheduling of budget	5

The classification portion of the document's code includes such features as the periodicity of drawing up the document, the number of the problem for which the document is used, the number of sections, chapters and paragraphs of the budget classification, the number of the plan of accounts and certain others; these are also put in the heading.

There are proposals to classify documents according to the subsystems and complexes of problems in the ASFR showing their numbers in the codes of the document forms. In our view, this is not rational. In the first place, the functional structure of the ASFR (the composition of subsystems and problems) has been repeatedly changed and such changes are also possible in the future. Moreover, it is not the same in all the computer centers of the Union republic ministries of finances. Secondly, certain documents are used in several subsystems and problems and this does not make it possible to clearly and uniformly define the content of the classification groupings constructed according to the given feature as well as the codes of the document forms. Thirdly, the "attaching" of the documents to the subsystems of the ASFR does not provide any advantages in computerized data processing, since the data bases of the automated ASFR data bank are not to be organized according to the documents.

As for the standardizing of the financial documents, this basically comes down to the following. In the first place, the dimensions of the document forms should correspond to the established State Standard formats. Secondly, the position of the essential elements (the heading, codes, tables and signatures) on all forms of a certain type should be uniform and carried out in accord with the sample blank, that is, a special blank which establishes their dimensions and position. Thirdly, the documents should be standardized also in terms of content. First of all it is essential to establish the presence of all the indicators required for solving the problems and taking decisions; the lacking indicators must be put in. In opposition to this, it is essential to exclude the duplication of data in the input documents when this is unjustified under the functional conditions of the ASFR. The current documents, in particular the budget planning documents, contain reports for previous periods and these will be obtained from the automated ASFR data bank. For this reason, they must be excluded from the documents received from the inferior financial bodies, other ministries and departments. Moreover, in the standardized forms it is essential to achieve a unity in the terminology employed and eliminate synonyms. This problem must be solved first of all by the classifier of financial indicators in the ASFR. The entries in the documents must be made precisely in accord with it.

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ECONOMIC MODELING AND COMPUTER TECHNOLOGY APPLICATION

MATRIX MODEL FOR SECTORIAL FINANCIAL RESOURCES

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[Article by Candidate of Economic Sciences R. Buzunov: "A Matrix Model of the Financial Resources of a Sector"]

[Text] The need for the dynamic, proportionate and balanced development of the national economy and its sectors on the basis of the complete meeting of the public need for all types of resources and their most efficient use was specified by the 26th CPSU Congress. This requires, in particular, the consistent use of the balance method of planning and accounting. At present the compiling of balances and plans of the distribution of raw materials, the most important materials, equipment, production capacities and manpower resources has undergone considerable development and is being used extensively in practice in all the links of the management of the socialist economy. Comprehensive balances of interchangeable materials, intersectorial balances of the production and distribution of output and so on are being drafted and used. There are sufficient grounds to believe that the structural ratios and dynamics of the indicators of the physical production aspect of the process of the expanded reproduction of the national product have already been studied quite thoroughly and comprehensively by means of a branched system of balance sheet calculations.

However, the problems of ensuring the balanced development of the socialist economy go beyond this. One must not ignore the planning of the financial and value proportions of expanded reproduction in the sectors and the achievement of the fundamental unity of the physical and value indicators of economic growth. Only with such an approach will finance and the financial and credit system, the structure of prices and cost accounting have an effective regulatory influence on the acceleration of the turnover rate of physical assets and on the decrease of unproductive expenditures and losses in the national economy.

When determining the financial and value proportions and drawing up the assignments the projected indicators of the production plans in physical terms are usually relied on. If in the process of compiling the plan of the development of a sector the need arises to increase the volumes of the production of output or to implement some technical and organizational measures which require additional expenditures, the decision on this is made only after its practicability is guaranteed by the appropriate financial backing. Any changes in the material basis of the economy should inevitably find the appropriate reflection in the amount and structure of the revenues and expenditures for the purpose of the observance of the

balance sheet coordination in the movement of physical and monetary resources and the assurance of a real possibility of fulfilling the production assignments. Thus, the amount and composition of the financial resources of each sector during the planning period should be determined by the needs for capital investments, for the increase of working capital and so on, which are necessary for ensuring the planned growth rate of the production of output in this sector.

At the same time it is well known that the dependence of the financial proportions on the physical proportions is not absolute. The financial plan frequently has an active influence on the indicators of the physical volume of the production of output. The limitedness during each given period of the amount of monetary assets, which are at the disposal of one link or another of the national economy, and the established procedure of their distribution place certain limits on the development of production and influence its structure and organization.

In the process of achieving a financial balance, along with the establishment of conformity between the movement of physical and monetary resources, the specific problems of increasing the efficiency of the use of the available financial assets are also solved. These are, for example, the improvement of the interrelations of the sector and individual enterprises with the state budget and other institutions of the financial system, the substantiation of the optimum structure of the sources of financing of expenditures, the determination of the degree of centralization of financial resources and so on.

For the purpose of increasing the influence of the financial mechanism on the mobilization of internal economic reserves the drafts of the aggregate financial balance and the balance of the monetary income and expenditures of the population were included for the first time in the balance sheet calculations of the 11th Five-Year Plan. Whereas so far the five-year financial plans were drafted only in the ministries which had been converted to cost accounting methods of operation, now the process of compiling the long-range plan of the economic and social development of each of the sectors of the national economy should contain without fail the careful balance sheet study of its financial and value aspect. Here the most complete integration as possible of the financial distribution mechanism with the plan indicators of current production and the sale of output, the productive and nonproductive capital investments, the increase of fixed and working capital and personal and collective nonproductive consumption should be ensured. The more dynamic, large-scale and complex the object of planning is, the greater the importance of a financial and value balance and the coordination of the physical and monetary resources of expanded reproduction is.

The steady increase of the role of economic methods of management and the broadening of the initiative of enterprises and production associations in the spending of the revenues being received are increasing the influence of the financial and economic decisions of the local economic units on the sectorwide financial proportions and are complicating the means of forming the latter. As a result, the practice of composite sectorial analysis and planning is making additional demands on the improvement of the existing methods of the financial justification of production programs and the elaboration of new, modern ones. The development and introduction in the practice of sectorial management of diverse methods of modeling the financial proportions have become an urgent requirement of the present stage of economic development.

In order to have a quite complete idea of the specific processes of the receipt, distribution and use of monetary assets and of the structural changes taking place and being planned in the formation of individual indicators and the financial status of the sector as a whole it is necessary to have data on the balance sheet coordination of the revenues and expenditures of the sector not only with respect to the item totals, but also with respect to each source of financing of one type of expenditures or another. The knowledge and soundness of the internal financial and value proportions and ratios increase the balance of sectorial finances with the material resources being used. The obtaining of the required systematized financial and economic information is achieved by the development of a matrix model of the formation and distribution of the financial resources of the sector. This model makes it possible to set forth clearly, compactly and in a logically sound manner in tabular form the information on the financial and value flows and on the creation and use of funds of monetary assets, facilitates the input into computers and the mathematical processing of the output information and gives a clear idea of the results of the computation. It is possible to name the intersectorial balance, the matrix form of the technical, industrial and financial plan of the enterprise and national accounts as analogues of such models.

The construction of the matrix model of the financial resources of a sector is based on the following basic procedural assumptions. The set of enterprises and production associations, which belong to the sector, with the entire complex of their management and economic activity serves as the object of the calculations of the model. Such an approach to the study and planning of sectorial finances is dictated by the fact that the description of the financial and value aspect of the process of expanded reproduction, the functioning of the mechanism of cost accounting and the movement of revenues and expenditures presumes the reflection of the real financial interrelations between the institutions of the financial and credit system and the economic units which act as legal entities and the objects of contractual relations. In this case the sectorial matrix model encompasses all the financial resources which are at the disposal of the primary production units and the organs which manage them (trusts, main administrations, the ministry). The internal monetary assets and the assets, which are accumulated by the state and are turned over to the sector through the financial and credit system, are included in these resources. The formation and use of the funds of monetary assets take place directly at the enterprises and production associations as a result of the sale of the output produced by them and the rendering of physical services (the performance of repair work, the transportation of freight and so on), and also as a result of the interrelations with the state budget, lending organizations, organs of state insurance and social security and organs of management, which are superior with respect to the sector.

The same reporting and plan indicators of the monetary revenues and expenditures at different enterprises at times have a different specific content subject to the type of enterprise or its appurtenance to the state or kolkhoz-cooperative form of socialist ownership. For example, the data on the amount of physical production outlays in the returns of kolkhozes in contract to sovkhozes contain the components of the revenue in the form of a portion of the received insurance indemnities, which are channeled into the replenishment of resources, while the basic and additional pay of kolkhoz farmers includes the deductions for social insurance and social security. Therefore the initial financial and economic information, which is enlisted for the calculations of the matrix model of the financial

resources of the sector, should be processed in advance for the complete comparability of all the indicators. The standardization carried out in recent years of the elements of cost accounting, the principles of financing and lending, record keeping and the procedure of planning is facilitating this work substantially.

The structure of the matrix model is based on the principle of the simultaneous reflection of the monetary revenues and expenditures of the sector. The possibility and necessity of the double recording of each financial operation are due to the fact that the balance sheet changes connected with it usually affect two line items--the revenue and expenditure items. Such a method of recording is used in the practice of accounting and the keeping of national accounts. Owing to its use the poles, between which the movement of financial resources takes place, are clearly seen in the balance. Moreover, as is known, the use of the internal monetary assets of enterprises and production associations, the allocations from the state budget, the receipts from the credit system and sectorial centralized funds has a strictly specified purpose. The special-purpose nature of financing makes it possible to specify precisely the source and purpose of the monetary assets, that is, the direction of the financial flows. The use of the method of red inking, in case of which the receipt of monetary assets is recorded with positive figures, while their use is recorded by negative figures, also promotes this. Together the indicated procedural techniques, which are based on the specific nature of finances and financial interrelations, lend dynamicness to the indicators of the model and make it possible to reflect in it the process of the movement of monetary assets by the stages of expanded reproduction. In this case, of course, the specific numerical elaborations for each sector should be based on the methods of planning and financial record keeping, which are used in it.

On the basis of the essence, functions and characteristic traits of sectorial finances and the expounded procedural assumptions, it is possible to develop the fundamental diagram of the matrix balance model of the formation and distribution of the financial resources of the sector, which is cited here. It is an articulation table, which consists of three sections (and six blocks). Each of the sections of the balance reflects a specific stage of the financial and value aspect of the process of expanded reproduction in the sector.

The proportions of the creation and primary distribution of the elements of the value of the sold output and physical services: the different types of current production outlays, profits and losses from the production and sale of items, non-production and extraproduction expenditures, which are a necessary condition of current production, are examined in section I of the matrix model. Moreover, in block I the process of the formation of the entire amount of the internal monetary assets of the sector is shown and the individual sources of the assets are distinguished in conformity with their economic purpose. Block IV contains the data on the use of the services and resources of the financial and credit system for the financing of production outlays and the expenditures on the sale of the finished products of the sector, as well as information on the state of the current financial settlements of its enterprises and production associations with the state budget, lending organizations, organs of property and social insurance, executive sectorial organs, workers and employees and so on. The total line of section I as a whole characterizes the amount and composition of the monetary assets of the sector without regard for the financial resources temporarily attracted from outside. Having designated each of the n components of the value of the sold

output by X_{ij} and the use of the external sources of assets m for the financing of current production and the sale of the finished products by U_{ij} , we will obtain the following abstract formula of the structure of the primary distribution of the financial resources of the sector:

$$\sum_{i=1}^n X_{ij} - \sum_{i=1}^m U_{ij} \quad (j=\overline{1, e}). \quad (1)$$

Fundamental Diagram of the Matrix Model of the Financial Resources of a Sector

		(2) Потребители финансовых ресурсов (j)			(6) Сальдо ресурсов (R)	
		Производство и первичное распределение стоимости продукции (3)	Перераспределение финансовых ресурсов (4)	(5) Конечное использование ресурсов		
(10) Формирование финансовых ресурсов ↓	(1) Источники финансовых ресурсов (i)	(7) Элементы стоимости реализованной продукции и материальных услуг (1, 2, 3, ..., e)	Институты финансово-кредитной системы и централизованные отраслевые фонды (8) (1, 2, 3, ..., q)	(9) Элементы фондов возмещения, накопления и потребления (1, 2, 3, ..., k)		
	(11) Собственные ресурсы отрасли	(12) Источники денежных средств в соответствии с их экономическим назначением (1, 2, 3, ..., n)	(13) I блок X_{ij}	(14) II блок $-S_{ij}$	(15) III блок $-Y_{ij}$	R_1 R_2 \vdots R_n
	(16) Получаемые финансовые ресурсы	(17) Институты финансово-кредитной системы и централизованные отраслевые фонды (1, 2, 3, ..., m)	(18) IV блок $-U_{ij}$	(19) V блок Z_{ij}	(20) VI блок $-Y_{ij}$	R_1 R_2 \vdots R_m
	(21) Итого ресурсов		$\sum_{i=1}^n X_{ij} - \sum_{i=1}^m U_{ij}$	$\sum_{i=1}^m Z_{ij} - \sum_{i=1}^n S_{ij}$	$-\sum_{i=1}^{n+m} Y_{ij}$	$\sum_{i=1}^{n+m} R_i$
(22) Использование финансовых ресурсов						

Key:

1. Sources of financial resources (i)
2. Users of financial resources (j)
3. Production and primary distribution of value of output
4. Redistribution of financial resources
5. End use of resources
6. Balance of resources (R)
7. Components of value of sold output and physical services (1, 2, 3, ..., e)
8. Institutions of financial and credit system and centralized sectorial funds (1, 2, 3, ..., q)

[Key continued on following page]

Key (continued):

- | | |
|--|---|
| 9. Components of replacement, accumulation and consumption funds (1, 2, 3, ..., k) | 14. Block II: $-S_{ij}$ |
| 10. Formation of financial resources | 15. Block III: $-Y_{ij}$ |
| 11. Internal resources of sector | 16. Received financial resources |
| 12. Sources of monetary assets in conformity with their economic purpose (1, 2, 3, ..., n) | 17. Institutions of financial and credit system and centralized sectorial funds (1, 2, 3, ..., m) |
| 13. Block I: X_{ij} | 18. Block IV: $-U_{ij}$ |
| | 19. Block V: Z_{ij} |
| | 20. Block VI: $-Y_{ij}$ |
| | 21. Total resources |
| | 22. Use of financial resources |

The internal monetary assets of the sector, which were formed with respect to individual sources, later enter the stage of redistribution, which finds reflection in section II of the matrix model. At this stage of expanded reproduction a portion of the assets of the sector in the form of mandatory payments to the state (the turnover tax, the income tax, profit withholding taxes, the fee for productive capital, the repayment of Gosbank loans, the payment of interest for the use of credits, contributions to state insurance organs, the transfer of assets to the nonproduction sphere and so on) enters through the financial and credit system into national economic circulation, while the monetary assets, which are temporarily idle at individual enterprises, enter the centralized sectorial funds. At the same time monetary assets, which are intended for the planned increase of capacities and the continuous flow of production processes, are channeled into the sector by the state through the redistributed public funds. The data on this aspect of the redistribution of financial resources are contained in block V of the model.

The result of the interconnection of these two financial flows, which are opposed in their qualitative content and directions, in general form can be represented in the following manner:

$$\sum_{i=1}^m Z_{ij} - \sum_{i=1}^n S_{ij} \quad (j=\overline{1, q}), \quad (2)$$

where Z_{ij} is the receipt of monetary assets from the institutions of the financial and credit system and the centralized sectorial funds i by the enterprises of the sector; S_{ij} is the withholding of monetary assets for the institutions of the financial and credit system and the centralized sectorial funds j at the expense of source i of the internal financial resources.

In this case, as a rule, the same institution of the financial and credit system or the centralized fund of the sector acts both as the source of financial resources and as their recipient (that is, $i=j$), while the number of sources of resources, which are distinguished in the list of the matrix model, does not coincide with the number of their recipients (usually $q > m$). Such a construction of section II of the model and the primarily diagonal information filling of its block V make it possible to form along the vertical the balance indicators of the financial interrelations of the sector not only with the financial and credit system as a whole, but also with each of its participants. As a result the mechanism of their financial and economic interactions is completely revealed, the opportunity arises

to analyze comprehensively the functioning of the entire network of channels of financing and to specify the means of its further improvement.

The detailed breakdown of the process of the redistribution of the financial assets of sectors is especially necessary now, when life is posing new tasks on the improvement of the economic mechanism. The fulfillment of the decree of the CPSU Central Committee and the USSR Council of Ministers of 12 July 1979, "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality," requires, in particular, the more effective use of such value levers as the profit, the fee for productive capital, credit, the interest for credit and so on. Each of these levers affects in its own way the economic operations of the enterprise and the sector as a whole. For example, the standards of the fee for productive capital and long-term loans should stimulate the introduction of new equipment and advanced technology, while the improvement of the procedure of distributing the profit and amortization, the restriction of outright budget financing and the broadening of the sphere of long-term and short-term bank lending should lead to the extension of the cost accounting principle of self-sufficiency. The use of the matrix model of the financial resources of a sector makes it possible to reflect more directly and comprehensively their influence on production in conformity with the demand of the systems approach to the management of the economy.

The total amount of monetary assets, which the sector has at the end of the given cycle of expanded reproduction, is formed as a result of the primary distribution and redistribution of financial resources. On the basis of formulas (1) and (2), the amount of financial resources, which can be used for the continuation of the reproduction process in the given sector, acquires the following expression:

$$\sum_{j=1}^e \left(\sum_{i=1}^n x_{ij} - \sum_{i=1}^m u_{ij} \right) + \sum_{j=1}^q \left(\sum_{i=1}^m z_{ij} - \sum_{i=1}^n s_{ij} \right). \quad (4)$$

After making several transformations we obtain a description of the composition of all the financial resources of the sector according to their sources:

$$\sum_{i=1}^n \left(\sum_{j=1}^e x_{ij} - \sum_{j=1}^q s_{ij} \right) + \sum_{i=1}^m \left(\sum_{j=1}^q z_{ij} - \sum_{j=1}^e u_{ij} \right). \quad (5)$$

The total amount of the transfers of value at the stage of the redistribution of financial resources is overstated with respect to the real transfer of monetary and physical assets. This is due to the fact that the movement of value in part involves so-called pure redistribution (or transfers), that is, transfers via contra accounts, the noncash transfer of money or securities. Such financial operations take place, for example, when paying taxes, contributions to the state budget, interest for credit, in the case of the repayment of Gosbank loans and the simultaneous receipt of new allocations from the financial and credit system. Therefore, the balance sheet conformity between the physical and financial indicators is possible and mandatory only at the beginning and the end of the process of reproduction. Consequently, in the plan of the development of the sector the primary revenues should be balanced with the amount of the produced and sold output, while the final (anticipated) financial resources should be balanced with the amount of consumed material resources and the wage fund. In this connection the column of

the clearing of transfers is inserted in section II of the matrix model. With allowance made for this formal financial operation the amount and composition of the monetary assets, which the sector actually has for the recovery of expenditures and the increase of the scale of production, assume the form:

$$\sum_{i=1}^n \left(\sum_{j=1}^e X_{ij} - \sum_{j=1}^q S_{ij} + N_i \right) + \sum_{i=1}^m \left(\sum_{j=1}^q Z_{ij} - N_i - \sum_{j=1}^e U_{ij} \right), \quad (6)$$

where N_i is the amount of the repayments of transfers for source i of the financial resources.

Finally, the financial resources in the full amount enter the stage of final consumption, when the direction of their expenditures from the point of view of the prospects of the development of production becomes obvious.

The description of the ultimate needs of the sector for assets is cited in section III of the matrix model of financial resources. Here the distribution of the financial resources, which were received from various sources, for the recovery of the expenditures of current production, the increase of fixed and working capital and nonproduction consumption is shown by lines, while the composition of the assets being used by sources of financing (internal economic, budgetary, credit, intrasectorial and so on) is shown by columns. The differentiation of the expenditures, which are intended for the replacement of the consumed means of production and the expansion of the production capacities, is of great importance, since there are characteristic of the different sources of financing their own conditions of the formation and expenditure of assets and in the case of long-range calculations difficulties with the determination of their optimum ratios usually arise. Mathematically the amount and proportions of the ultimate use of the financial resources available in the sector can be expressed in the following manner:

$$- \sum_{i=1}^{n+m} Y_{ij} \quad (j=1, k), \quad (7)$$

where Y_{ij} is the expenditures of monetary assets from source i for the financing of component j of the sectorial replacement, accumulation or consumption funds. The indicators of the balance of resources, which characterize the degree of use of the monetary resources, which were received through each of the channels of financing

of production activity and nonproductive expenditures in the sector $\left(\sum_{i=1}^{n+m} R_i \right)$, are

cited in the last column of the diagram of the balance matrix model. Theoretically in the case of the complete utilization of the received assets in accordance with their special purpose $R_i = 0$. Deviation from these indicators in one direction or another attests to certain shortcomings in the organization of sectorial finances, which are connected with the attraction of assets for the financial backing of some measures or others from sources which were not intended for this purpose. Since in the ideal case all the financial resources available in the sector should be used completely with respect to each direction, it is possible to summarize: the given balance system constantly strives for equilibrium.

As a whole it is easy to construct a mathematical economics model of the balance equilibrium of the financial resources and expenditures of a sector. Taking into account the structural content of formulas (6) and (7), we obtain the following system of algebraic equations:

a) The balances of the internal monetary assets of the sector:

$$\sum_{j=1}^e X_{ij} - \sum_{j=1}^q S_{ij} + N_i - \sum_{j=1}^k Y_{ij} = R_i \quad (i=\overline{1, n}). \quad (8)$$

b) The balances of the received financial resources:

$$\sum_{j=1}^q Z_{ij} - N_i - \sum_{j=1}^e U_{ij} - \sum_{j=1}^k Y_{ij} = R_i \quad (i=\overline{1, m}). \quad (9)$$

c) The condition of the balance equilibrium of revenues and expenditures:

$$\sum_{i=1}^{n+m} R_i = 0 \quad \text{when } R_i \rightarrow 0. \quad (10)$$

While simulating the financial and value aspects of the process of expanded reproduction, the model contains the necessary and adequate conditions of the balance of the financial potential of the sector with the needs for the financing of the production program. The compiling of a matrix balance model and the mathematical processing of its indicators make it possible to reveal the internal content of the set of financial interrelations of the sector, to analyze the laws of the development of the mechanism of sectorial finances and to determine the sources of the meeting of the additional need for monetary assets or the nature of the changes in the methods of the financial backing of the sectorial planning projections. The practical use of the matrix model of financial resources makes it possible to calculate quickly a number of versions of the financial backing of the development of the sector with allowance made for all the interconnected consequences.

No classification of the components of the value of the sold output and physical services and of the channels of the interrelations with the financial and credit system is cited in the diagram of the matrix model of the financial resources of the sector. In the case of the practical use of the matrix model the corresponding structure of the funds and the indicators of the expenditure of the internal monetary assets of the sector and the financial resources received from outside should be developed. The specific choice of the list and the level of the aggregation of the indicators depend on the set analytical planning goals and on the length of the used time interval.

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REGIONAL DEVELOPMENT

ECONOMIC DEVELOPMENT OF KAZAKHSTAN TRACED

Alma-Ata NARODNOYE KHOZYAYSTVO KAZAKHSTANA in Russian No 5, May 82 pp 8-14

[Article by Candidate of Economic Sciences K. Isentayev, chief of the Department for Territorial Planning and the Location of the Productive Forces Under the Kazakh Gosplan: "In the Constellation of Free Republics"]

[Text] Vast are the expanses of Kazakhstan stretching from the snowy mountains of the Altay in the east to the grey Caspian in the west, from the Siberian Depression in the north to the spurs of the Tien-Shan in the south. In territory it is the equal of such nations as England, Spain, France, West Germany, Austria, the Netherlands and Denmark taken together.

Its underground wealth is incalculable. the fertile lands produce generous harvests and the herds and flocks of livestock are inestimable. All these great riches belong to the people and have been put into the service of our socialist motherland. Under the will of the Communist Party and by the unstinting labor of the Soviet people in a few decades Kazakhstan has been turned into a region of powerful modern industry and developed agriculture, advanced science and high culture, into a region of abundance and happiness. At present it shines brightly in the constellation of the nation's fraternal republics which are advancing as a single strong family toward the glorious jubilee, the 60th anniversary of the formation of the USSR.

But let us recall its history which runs far back over the centuries. What first existed in the ancient Kazakh land? How did the people live on it?

Over the centuries, Kazakhstan was subjected to invasion from the east by hordes of various conquerors and by bloody raids of foreigners. By fire and sword they destroyed the creations of human hands: both the farmed oases and the irrigation systems, the cities and settlements with their trades and culture. The Kazakh land was covered with the corpses of the slaughtered and many thousands of persons were sent into slavery.

As history shows, the most critical in the life of the Kazakh people were the years at the end of the 15th and the beginning of the 18th centuries. Impotent and bled white by wars of plunder, beset by intratribal strife, the indigenous Kazakh population was on the border of complete enslavement by the feudal lords and khans behind which stood the English and other colonialists. Among the masses of people, more and more the idea grew of the need to seek protection

and aid from their mighty ally, Russia, with which trade and other ties had long been maintained.

At the beginning of the 1730's, the aspirations of the Kazakhs were realized. At that time, 250 years ago, Kazakhstan was voluntarily annexed to Russia. This had a favorable influence on a revival in economic and sociopolitical life in the area and accelerated the breaking up of the patriarchal and feudal system and the development of the inexhaustible natural riches.

But still, regardless of the annexation, the indigenous inhabitants of the areas here for a long time were unable to surmount the age-old backwardness and escape from darkness and ignorance. The Tsarist autocracy did not give and could not give the Kazakhs complete liberty and independence. On the contrary, it turned the enormous and rich area into its colony, into a raw material appendage and into a source of gain for the Russian and foreign capital. Tsarism focused all its policy and strength on defending the interests of the landowners, feudal lords and beys, depriving the working people of any rights.

Only Great October which opened up a new era in the history of mankind brought the Kazakhs from darkness into light, to a true road of freedom, independence and happiness. The Decree of the KaCP [Kazakh Communist Party] Central Committee "On the 250th Anniversary of the Voluntary Annexation of Kazakhstan by Russia" states: "Under the leadership of V. I. Lenin and the Bolshevik party, with the fraternal aid of the Russian people, the Kazakh workers in a fierce struggle against the enemies of the new world overthrew the power of the exploiters, they defeated the foreign interventionists and internal counterrevolution, they established and strengthened Soviet power. Having liberated the peoples once and for all from exploitation, social and national suppression, the Great October socialist revolution created fundamentally new conditions for establishing friendship among peoples."

Over the years of Soviet power, under the wise leadership of the Communist Party in the fraternal family of the Soviet peoples, our republic's workers have achieved unprecedented heights in the development of their economy, science and culture. In several decades, Kazakhstan, in skipping capitalism, has followed a path equal to centuries and has achieved the heights of socialist civilization.

All of this has been possible due to the unswerving carrying out of the Leninist nationality policy by the party and to the constant, selfless aid to the workers of the republic from all the nation's peoples and primarily their elder brother, the great Russian people. Precisely because of this, Kazakhstan even in the 1st Five-Year Plan was turned from a backward agrarian area into an agroindustrial area, and in the 2d Five-Year Plan into an industrial-agrarian one. In 1936, for the first time in history it began to produce more industrial product than agricultural.

The republic's economic potential has grown year by year. The growth rates of industrial production in our republic have been higher than the national average. Thus, for example, gross product for the entire national industry (in 1926-1927 prices) in 1937 had increased by 220.6 percent in comparison with

1932, but in Kazakhstan it was by 241.9 percent. Particularly impressive were the advances in the development of heavy industry. Over this same period its fixed capital increased by 4.2-fold.

The given figures eloquently show the triumph of Lenin's plans and the wisdom of the economic and social policy of the party which set as one of the main tasks to rapidly bring up the former national borderlands of Russia to the development level of the center.

The workers of Kazakhstan steadily conquered height after height. The diversified industry developed rapidly while railroads and highways were built across the one-time uninhabited steppes. During the years of the first five-year plans, hundreds of large industrial enterprises were put into operation. Scores of new towns and worker settlements appeared on the republic's map. The future seemed beautiful. But the Nazi invasion of our land interrupted the peaceful creative labor of the Soviet people.

In a single formation with all the peoples of the Soviet nation, the Kazakhs came to the defense of their multinational socialist motherland. They were loyal to the unshakable fraternal friendship of peoples which was to be that monolith on which foundered the shock force of international capitalism, Nazism. For unprecedented courage and heroism shown on the battlefields, more than 100,000 persons from Kazakhstan were awarded combat orders and medals and around 500 men received the high title of Hero of the Soviet Union.

During the years of wartime turmoil, in suffering hardships and in surmounting unbelievable difficulties, the people of Kazakhstan also labored unstintingly in the rear. In a short period of time they reorganized industrial production on a wartime footing and without leaving the shops for days on end began producing products for the front.

At that same time, from the frontline areas, such enterprises were evacuated to us as the Lugansk Steam Locomotive Building Plant, the Voronezh Machine Building Plant, the Zaporozhye Ferroalloy Plant and many others. As a total the equipment of 142 large- and medium-sized enterprises was moved and re-installed. The republic developed new production and began series output of the required types of military equipment, weapons and ammunition. Thus, Kazakhstan became a powerful arsenal for the front.

But that was not all. The people of Kazakhstan provided the men in the operational army with food, clothing, footwear, in a word, with everything necessary. One has merely to give the following data. During the years of the Great Patriotic War, the republic's workers manufactured for the front summer uniforms for 487 divisions, underwear for 451, personal equipment for 245, overcoats for 70, felt boots for 67, padded clothing for 59, leather footwear for 53 and short fleece-lined coats for 25 divisions. This was a weighty contribution to the common cause of defeating the enemy.

The organ of our party's Central Committee, the newspaper PRAVDA, had high praise for the heroism and feats by the republic's workers on the front and in the rear. In an editorial devoted to a letter from the Kazakh people to the Kazakh soldiers, it wrote: "The Kazakhs are fighting well on the front,

their fathers, mothers and wives are working well in the rear. Kazakhstan is strongly supporting the front with all the riches of its land and with all the treasures of its mountains.... Kazakhstan is close and dear to the Soviet people. We love the direct, frank and courageous soul of the Kazakh, his humility and his loyalty."

With such a "certificate of maturity" the Kazakh people and all the republic's workers greeted the long-awaited Victory Day. It was greeted with a feeling of legitimate pride and honestly fulfilled duty to their motherland and to all the fraternal peoples of the socialist fatherland. And they resumed their peaceful creative labor, but already on a stronger economic basis than before the war.

In the postwar period the economy and culture of Kazakhstan have developed at rapid, high rates. In terms of the scale of socialist construction, a year became equal to former decades. The republic was turned into a gigantic construction site. On the previously uninhabited steppe expanses, fine modern towns and worker settlements arose, well equipped farmsteads of kolkhozes and sovkhoses, the inestimable raw material resources and other natural riches more and more widely were put into economic circulation and new, most progressive sectors of industrial production arose and were successfully developed.

Present-day Kazakhstan is a major economic region of the nation, the role and importance of which are growing every year. Its modern industry is represented by such leading sectors as ferrous and nonferrous metallurgy, power, the coal, oil and gas industries, machine building and chemistry. The development of all types of transport and means of communications has assumed an enormous scope.

In terms of the pace and level of economic, social and cultural development, today's Kazakhstan cannot be compared with its prewar period. At present, the volume of industrial product produced in just one year is 5-fold greater than was produced over all the 1st, 2d and 3d Five-Year Plans taken together. In a month we produce almost as much product as was produced in 1952. It takes just a half day to produce the product equal in volume to all 1920.

Two other figures. At present, each year the republic produces industrial product that is 252-fold more than in 1913 and 875-fold more than in 1920.

Striking changes. Let us describe the magnificent achievements of Kazakhstan over the years of Soviet power as broken down for the leading national economic sectors.

Thus, *the fuel-energy industry* which is based upon coal mining. Its reserves on the republic's territory have been discovered at more than 100 deposits. As is known, the developing of the first of these deposits began at the end of the 19th century. However, exploitation in those times was carried out by the most primitive methods, that is, by the forced labor of the miners. Naturally, coal output was miserly.

This sector began to truly develop during the years of the Soviet five-year plans. The growth rates of coal mining were truly unprecedented. For a demonstration let us give the following data. In 1932, in Kazakhstan, basically in

Karaganda, 822,000 tons of coal were mined, in 1934 the figure was 1,919,000: in 1937 the figure was 4,203,000 and in the prewar year of 1940--6,972,000 tons.

Even in the 2d Five-Year Plan, the Karaganda Basin had been turned into the nation's third stoke-hold. Particularly noticeable was the great shift in the technical reequipping of the mines. While at the beginning of the five-year plan only 0.3 percent of the work was mechanized here, by the end it was over 90 percent.

The unbreakable friendship of the Soviet peoples could be felt with renewed strength in raising the coal industry, as in all the other sectors. Russians, Ukrainians and representatives from the other fraternal republics helped us in developing the basin. Miners from the Donets Basin generously shared their rich experience with the Karaganda workers, passing on to them advanced work procedures and methods. During the war years, when the Donets Basin was temporarily under Nazi occupation, the ranks of the Kazakh working class were filled out by more than 50,000 Donets miners and mine builders. The pace of coal mining began to grow even more.

But the greatest increase in the mining of the fuel happened during the years of the postwar five-year plans. This was aided by the creation of the unique Ekibastuz Fuel-Energy Complex which has no analogue in world practice. The nation's cheapest Ekibastuz coal is supplied to power plants not only in our republic, but also in Siberia, the Urals and the European USSR.

The increase in coal mining in Soviet Kazakhstan is simply amazing. In the 10th Five-Year Plan it already crossed the 110-million mark. Just compare two figures: in 1913, just 90,000 tons of coal were mined on its territory, and in 1980 more than 115 million tons. In terms of the output of this type of fuel, the republic has surpassed the level of Spain by 9.4-fold, Canada by 4.8 and France by 4.2.

Even greater prospects have opened up for Kazakhstan. The national economic plan envisages that in 1975 coal mining will rise to 134.1 million tons. Just one coal mine the Bogatyr' in Ekibastuz each year will produce over 50 million tons!

Power plays a major role in tapping the enormous natural riches of the republic and of the entire nation. At present, Kazakhstan holds third place in the USSR in the generating of electric power.

We began electrification literally on an empty place. Prior to Soviet power, the capacity of all the power plants in the republic did not surpass the power of one modern diesel locomotive.

Initially on the map of the new Kazakhstan appeared the what would not be considered small Tishinskaya and Khariuzovskaya hydroelectric plants [GES] in the Rudnyy Altay. Then the fires of the Alma-Ata and Semipalatinsk heat and electric power plants [TETs] came alive and later arose the large Altay, Karaganda and Southern Kazakhstan industrial-energy centers, the Tekeli, Aktyubinsk, Dzhezkazgan and Balkhash TETs, the Ust-Kamenogorsk and Bukhtarma GES, and so forth and so forth.

So Kazakhstan actually stepped from the darkness of night into light, into the burning of electric lights. Again comparisons. In 1928, the republic produced 7.5 million kilowatt hours of electric power, in 1940 the figure was 631.7 million, in 1970 34.35 trillion and in 1980 61.187 trillion kilowatt hours. In terms of per capita electric power output, the republic presently surpasses such developed capitalist nations as Italy, Finland and certain others.

The future seems even brighter. At present, as has already been said, the unequaled Ekibastuz Fuel-Energy Complex is being created from five very large GRES. Their total capacity will be 20 million kilowatts (in 1940, the capacity of all the republic's power plants equaled 229,900 kilowatts). The scale of the work and the social importance of the economic and social tasks to be carried out have put this complex in the same rank with such major construction projects of the USSR as the BAM [Baykal-Amur Mainline], KamAZ [Kama Truck Plant] and Atomash [Nuclear Machinery].

With the completion of the Ekibastuz complex and the end of construction and the starting up of other power plants, electric power production in 1985 will be almost 98 billion kilowatt hours. The unique and conveniently located energy resources of Kazakhstan will ensure the further strengthening of the highly efficient electric power base.

The oil and gas industry is one of the basic and rapidly growing sectors in the republic economy. The Dossor and Makat oil fields marked the beginning of its development and in 1915 these produced 272,000 tons of liquid fuel. Subsequently added to their names were Kulsary, Iskine, Munayly, Koschagyl and Karaton....

But all of this, to put it figuratively, was just a prelude to major oil. A strong impetus for the further rise in oil output was provided by the discovery on the Mangyshlak Peninsula of such deposits as Uzen, Zhetybay and others. The creation of the Mangyshlak Territorial-Production Complex led to a rapid growth in the economic potential of this area which was developed under the exceptionally difficult conditions of an uninhabited, waterless steppe.

The first trainload of Mangyshlak oil was dispatched for refining in 1965. At present, the Mangyshlak and Emba oil fields annually produce 18 million tons of liquid fuel and over 5 billion m³ of associated natural gas. In terms of oil output, Kazakhstan presently holds second place in the USSR and surpasses all the nations of the European Economic Community taken together.

However, what has been achieved is not the limit. In recent years, a new promising oil-bearing region has been discovered in Aktyubinsk Oblast. On the Buzachi Peninsula such deposits as the Kalamkas, Karazhanbas and Severo-Buzachi have begun producing oil. Their full development in the near future will make it possible to bring fuel output in this area up to 10-12 million tons a year.

On the basis of natural gas production, such sectors as gas processing, chemistry and power have arisen and are continuing to develop. Three years ago, a large plastics plant began operating in the town of Shevchenko.

The pace of oil refining is expanding and increasing. To the existing Guryev Refinery the Pavlodar Refinery has been added and this operates on the oil from

Western Siberia. In the immediate future these enterprises intend to introduce secondary processes for the complete refining of mazut as well as increase the quality and broaden the assortment of oil products.

The building of the Chimkent Refinery is approaching completion. The Pavlodar--Chimkent oil pipeline will be completed.

Previously our republic had absolutely no *ferrous metallurgy*. Now, Kazakhstan produces more ferrous metals than all Tsarist Russia did in 1913 and in terms of iron and steel casting it has overtaken such highly developed European nations as Sweden, Austria and the Netherlands.

The birth of this leading national economic sector goes back to 1938, when the Don Chromite Ore Administration went into operation. Since then not only have our nation's needs for chromite ore been fully satisfied, but also a significant portion of it has been exported.

The metallurgical industry in the republic began to develop on a major scale during the years of the Great Patriotic War. It was then that the pioneers of ferrous metallurgy went into operation: the Aktyubinsk Ferroalloy Plant and the Kazakh Metallurgical Plant which produced its first steel on the eve of the victorious 1945.

Subsequently, major capacity for producing iron, steel, rolled products and coke was put into operation at the Kazakhstan Magnitka. Not 2 decades had passed before the combine's metallurgical workers cast their 50-millionth ton of iron.

The Sokolovsko-Sarbaynskiy Mining-Dressing Combine [GOK], where the production of iron ore pellets was developed for the first time in our nation, the Yermak Ferroalloy Plant, the Don GOK, the nation's largest sheet iron shop which is ready for operation at the Karaganda Metallurgical Combine, the rapidly built Kachar GOK, the Kazakh Plant for Aluminosilicate Refractories and a number of other enterprises and production lines--here are the stages in the subsequent development path of republic heavy industry. In addition to this the operating enterprises on a planned basis are being expanded, reconstructed and technically reequipped while production methods are constantly being improved.

The raw material base of the sector is growing stronger with every passing year. The very rich iron ore reserves of Kustanay and Karazhal, the Aktyubinsk chromites, the manganese ores and limestones of Central Kazakhstan have long been put into serving the national economy. At present, additional capacity is being put into operation for iron ore output at the Sokolovsko-Sarbaynskiy, Lisakovsk and Kachar GOK and chromite ore at the Don GOK. This is a dependable guarantee for a further increase in the output of iron and steel, rolled sheet and bars, for developing power, machine building, chemistry and transportation and for a new rise in the entire republic economy.

Soviet Kazakhstan is rightly called the treasurehouse of nonferrous metals. For this reason, *nonferrous metallurgy* is a particular pride of the people of Kazakhstan. The level of its present development has no comparison with the

prerevolutionary past. In those times here only gold, silver, copper and lead were produced in small amounts. At present 32 types of nonferrous, precious and rare metals are produced, up to 70 types of rolled products and more than 10 other types.

The products of the sector are in great demand not only in the USSR but also on the world market. Everywhere their purity, goodness and reliability are commented on. For example, the Ust-Kamenogorsk zinc, the Balkhash and Dzhezkazgan cathode copper are registered as the standards on the London Nonferrous Metals Exchange.

Over the years of the five-year plans, the republic has moved from small plants, mills and mines to gigantic highly equipped enterprises. Here the flagships of nonferrous metallurgy are the Ust-Kamenogorsk Lead-Zinc Combine, the Balkhash and Dzhezkazgan Mining-Metallurgical Combines, the Leninogorsk and Achisay Polymetallic Combine, the Zyryanovsk Lead Combine and the Ust-Kamenogorsk Titanium-Magnesium Combine, the Pavlodar Aluminum Plant, the Chimkent Lead Plant and the Irtysh Chemical-Metallurgical Plant.

The republic is presently responsible for a significant portion of the Union-wide output and production of lead, zinc, copper, aluminum oxide, titanium and other metals. In terms of lead and zinc smelting, it holds first place in the nation and second for copper smelting.

By reconstruction and expansion of the existing enterprises and the construction of new ones, the development level of nonferrous metallurgy will rise even higher in the future. For example, the fact that in the 11th Five-Year Plan 2.1 billion rubles of capital investments have been allocated for these purposes, or 51.2 percent more than in the 10th, speaks for itself.

In the republic the development of the *chemical industry* has assumed unprecedented scope. Prior to the revolution it was represented merely by a small pharmaceutical plant in Chimkent. Now Kazakhstan in terms of chemical production holds not only one of the leading places in the nation but has also emerged on the world scene.

Even in the 1930's, a pioneer of the chemical industry, the Aktyubinsk Chemical Combine, was built on the basis of the phosphorite and borate ores discovered in Western Kazakhstan. In 1936, phosphorite deposits were also discovered in Karatau and this predetermined the basic direction for the developing of the republic's major chemistry. Here a major complex was developed for the production of phosphorus and mineral fertilizers.

Kazakhstan became a pioneer in developing the output of highly concentrated fertilizer, ammofos, and an effective food supplement, defluorinated phosphates. The completion of the Chimkent and Dzhambul associations for the production of yellow phosphorus, for which our nation previously paid the foreign firms for in gold, brought the USSR in terms of existing capacity to first place in the world. We now produce more mineral fertilizers than Great Britain, West Germany, Italy and Japan.

In addition to those named, the republic has in operation the Aktyubinsk Plant for Chromium Compounds, the Guryev Chemical Plant, the synthetic rubber plant in Temirtau, the Chimkent Phosphate Salts Plant, the Kustanay Artificial Fiber Plant and a number of other enterprises and production lines. At present, the republic produces around 150 types of various chemical products.

With the creation and complete opening up of the Karatau-Dzhambul Territorial-Production Complex and with the starting up of the Chilisaysk GOK and other giants of heavy chemistry, during the current five-year plan the sector will take a new major step ahead.

Machine building is among the leading sectors of Kazakhstan's economy; it determines technical progress for the entire national economy. There was no machine building prior to the revolution. During the period of the first five-year plans, individual metalworking and repair shops and small plants arose.

The sector underwent significant development during the years of the Great Patriotic War when 15 machine building enterprises were shifted from the front-line areas into the republic. In a short period of time, the Alma-Ata Heavy Machine Building Plant, the automatic press plant in Chimkent, Kazakhsel'mash [Kazakh Agricultural Machinery Plant], the pump plant in Tselinograd, the fittings plant in Uralsk, the machine plant in Kokchetav and others went into operation.

In postwar times, machine building began to develop particularly rapidly, outstripping the growth rate of all republic industry. Constantly new names of enterprises began to appear such as the machine building, condenser and instrument plants in Ust'Kamenogorsk, the excavator and transformer plants in Kentau, the Elektroapparat [Electrical Equipment] Plant in Chimkent, the cable plant in Semipalatinsk, the heating equipment plant in Karaganda, the giant on the Irtysh, the Pavlodar Tractor Plant, not even all can be listed. There arose instrument and machine tool building, the energy and motor vehicle industry, construction, road and agricultural machine building.

Present-day Kazakhstan produces over 2,000 various types of machines, mechanisms, instruments and equipment. The product of our enterprises is exported to more than 60 foreign nations. And in the future is a new powerful rise in the sector's development.

It would be possible to say much more and in greater detail about the rise and development of other sectors in the republic's economy. Unfortunately, the limited size of a magazine article does not make it possible to do this. We will merely mention this briefly.

Like the above-mentioned leading sectors, during the years of Soviet power the lumber and woodworking industry, the light and food industries, the meat-dairy industry and local industry have grown immeasurably and the production of cultural, home and household goods has increased.

The republic is covered by a dense network of railroads stretching more than 13,000 km in all directions. New types of transport have been developed such as motor vehicle, air and pipeline. The means of communications, television

and radio have also appeared and are widely used. The length of the public transport arteries now exceeds 162,000 km.

For us, capital construction has become one of the major national economic sectors. Without this any development of industrial production and a rise in the culture and well-being of the Soviet people are inconceivable.

Kazakhstan has created and has in operation a broad network of specialized modern equipped construction and installation organizations. The word "construction worker" in our times has become a symbol of creation. The republic is literally covered with forests of new construction projects, the number of which has been growing year by year. For example, while in 1940 the volume of capital investments into construction did not exceed 260 million rubles, at present it is almost 8 billion rubles.

Our story about the rapid growth and strengthening of the economy would be incomplete if we did not mention at least briefly the development of agricultural production. Due to the successful implementation of Lenin's agrarian policy, in a short period of time it has been turned into a major, highly mechanized sector. The legendary virginlands saga provided a particularly powerful impetus for its rise. Here 25 million hectares of previously empty virgin and fallow lands were put into use.

In years with better weather conditions, prior to the development of the virginlands, the republic turned over to the state around 100 million poods of grain. At present, in the expression of Comrade L. I. Brezhnev, "it is becoming customary for Kazakhstan to provide a billion poods of grain and along with the grain of the Russian Federation and the Ukraine this comprises the basis of the nation's food supply."

A many-fold increase in the grain harvests has served as an accelerator for the development of another traditional sector for the republic, livestock raising. In terms of the production and procurement of meat, milk, eggs and wool, Kazakhstan holds leading places in the USSR.

In accord with the decisions of the 26th CPSU Congress, Kazakhstan is to make a weighty contribution to carrying out the nation's food program. In the 11th Five-Year Plan 17.4 billion rubles of capital investments, or almost one-half their amount for the republic, have been allocated for the creation and development of the unified agroindustrial complex. This means that the well-being of the workers will rise even higher and their life will become even more beautiful.

"It must be emphasized," writes Comrade D. A. Kunayev in his book "Sovetskiy Kazakhstan" [Soviet Kazakhstan], "that in many sectors of industry, construction, transportation and communications, science and culture, public education, public health, trade, and domestic services for the public, the level we have achieved has never been so extensive and significant as now."

Comrade D. A. Kunayev has said that "the high economic, scientific and cultural level achieved by the republic has served as a sort of starting point for the sure taking of new heights of which we previously did not even dream."

This is what Soviet Kazakhstan has now become, where 250 years ago there prevailed patriarchal-feudal relations which doomed the masses of people to backwardness, darkness and ignorance. From the heights of two and a half centuries, the lasting significance of its annexation to Russia becomes particularly clear and convincing. The importance of this has become fully apparent in the Soviet era. Proud of their successes, grateful for the achieving of them to all the fraternal peoples of our vast motherland, and primarily to the great Russian people, and confident of the successes of tomorrow, the workers of Kazakhstan are approaching the significant holiday of the 60th anniversary of the formation of the USSR.

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REGIONAL DEVELOPMENT

PROBLEMS, PROGRESS IN UKRAINIAN SUPPLY SYSTEM REVIEWED

Moscow MATERIAL'NO-TEKHNICHESKOYE SNABZHENIYE in Russian No 6, Jun 82 pp 3-10

[Article by P. Mostovoy, chairman of the Ukrainian Gossnab: "In a Single National Economic Complex"]

[Text] The decree of the CPSU Central Committee on the 60th anniversary of the formation of the USSR states that in a mature socialist society, a single national economic complex develops as the material basis for the fraternal friendship of our nation's peoples. The USSR is a powerful industrial state with highly mechanized agriculture, advanced science and culture. Its economy is developing dynamically. The country's national wealth is growing.

The party's course, as was pointed out at the 26th CPSU Congress, envisages a rise in the material and spiritual potential of each republic and at the same time its maximum use for the harmonious development of the nation. The party sees in this a necessary condition for the progress of Soviet society, for strengthening economic and defense might of the USSR and for increasing worker prosperity.

The economic and cultural flourishing of the USSR is well seen from the example of the Ukraine. In just 24 hours the republic produces over 645 million kilowatt hours of electric power, it ships 2.7 million tons of freight by rail and around 270,000 tons by sea and river transport. The construction workers complete 944 apartments and this makes it possible for approximately 4,000 persons to improve their living conditions.

The 10th Five-Year Plan was an important stage in the socioeconomic development of the Ukraine, as it was for the entire nation. Republic industry fulfilled ahead of time the plan for the total product sales volume and for the output of many major types of products. Some 4.8 billion rubles worth of product were sold above the annual plans. National income, in comparison with the 9th Five-Year Plan, increased by almost 70 billion rubles while the volume of industrial production rose by 123 billion rubles or almost by one-third. Some four-fifths of the increase in national income, considering expenditures on housing and sociocultural construction, was directly channeled into increasing the prosperity of the people.

The total volume of capital investments into the Ukrainian economy during the 10th Five-Year Plan was 93.7 billion rubles or 19.4 percent more than in the previous five-year plan. More than 150 new industrial enterprises went into operation. The most important of them included the Chernobyl and Rovno AES [nuclear power plant], the oil refinery in the town of Lisichansk, the Velikostovskaya No 10, Zapadno-Donbasskiy No 6/42 and No 16/17 mines.

Undoubtedly, of important significance in the successful development of the republic economy is the prompt supplying of the national economic sectors with material-technical resources. In 1976-1980, the Ukrainian Gosstab bodies supplied the republic economy with over 148 million tons of rolled ferrous metals, 831 million tons of coal, more than 93 million tons of cement, 88 million m³ of lumber. Over this same period agriculture received over 263,000 tractors, 187,000 trucks, 67,800 grain harvesting combines and other machinery as well as many preassembled articles and equipment for them.

The Ukrainian economy is linked by millions of threads with the other republics of our nation. During the 10th Five-Year Plan, the volume of interrepublic economic exchange for the Ukraine increased, in comparison with the 9th Five-Year Plan, by 87.7 percent. For a number of republics this increased more rapidly. Thus, trade with Uzbekistan more than doubled and that with Turkmenia rose by 4-fold.

Ukrainian ferrous metallurgy holds an important place in Union-wide production, its proportional amount in terms of iron ore mining is 53 percent, and around 37 percent for the production of steel, merchant bar products and steel pipe. This also has determined the republic's role in developing the raw material base for ferrous metallurgy and for increasing the production of iron and manganese ores for the needs of the nation and the fraternal socialist countries. We are also supplying products of machine building and metalworking, the food industry and agriculture, the chemical and light industries.

At the same time, from the other Union republics the Ukraine receives many articles from various national economic sectors and over 70 percent of its lumber. In recent years, fuel deliveries have increased. For example, our republic obtains natural gas, oil and petroleum products, rolling equipment, motor vehicles, wood and lumber from the Russian Federation.

Our republic has established equally close economic ties with Belorussia, Moldavia and the republics of the Baltic, Central Asia and Transcaucasia. Belorussia sends us woodworking articles, construction glass, large capacity trucks, tractors and mineral fertilizers. Moldavia supplies woodworking lathes and equipment for tilling orchards, vineyards and sugar beet fields, the Central Asian republics provide cotton fiber while the Baltic republics provide light and chemical industry products.

The main task of the 11th Five-Year Plan, as was emphasized at the 26th CPSU Congress, is to ensure the further growth of the prosperity of the Soviet people on a basis of the steady, on-going development of the national economy, by accelerating scientific and technical progress and converting the economy to an intensive path of development, by the greatest possible savings of all types of resources and improving work quality. Proceeding from this the plan for the

economic and social development of the Ukraine in 1981-1985 envisages the further development of the fuel and energy sectors, ferrous and nonferrous metallurgy, the chemical and petrochemical industry and machine building, an increase in the production of consumer goods, a broadening of the assortment and an improvement in their quality.

In the 11th Five-Year Plan the total volume of industrial production is to increase by 23 percent and provide an increase in product worth more than 25 billion rubles. By completing new capacity and improving the utilization of existing, there are plans to increase the output of merchant bar products by 6.7 million tons, to develop 70 new hot-rolled shapes and 25 cold-rolled shapes, to increase the output of rolled products from low-alloyed steel by 1.8-fold in comparison with 1980, for heat-treated steel by 2.1-fold and for rolled products with a reduced tolerance zone by 1.2-fold. There are plans to increase coal mining and to organize its processing on a broader scale. The enterprises and construction projects will receive more high-grade cement.

For manufacturing wallboard, pulp and consumer goods, over 32.8 million m³ of waste wood and low-grade wood will be used and this surpasses the level of the 10th Five-Year Plan by 26 percent. There is to be a significant improvement in the utilization of material resources. For producing aggregate product with a value of 1 ruble, in 1985, we intend to consume 1.9 percent less raw products, materials, fuel, electric power and other subjects of labor than in 1980.

The material and technical supply system plays a major role in converting the republic economy to a path of intensive development. The Basic Directions for the Economic and Social Development of the USSR for 1981-1985 and for the Period Up to 1990 envisage that in the 11th Five-Year Plan the consumption standards for rolled ferrous metals will be reduced by at least 18-20 percent in machine building and metalworking and by 7-9 percent in construction. This confronts the republic economy with the responsible and complex task of saving around 6 million tons of metal over the 5 years.

Particular attention must be paid to the plans being worked out for machinery, mechanisms and enterprises. There are many examples when a machine is put into production and in comparison with its predecessor it is more material intensive, it consumes more energy, it has lower productivity and in addition is not sufficiently dependable. This is particularly characteristic for agricultural machinery. The short life and unreliability of the equipment costs the nation very dearly. As practice shows, one out of every 5 tons of produced metal is spent to repair fixed capital, mainly machinery and equipment. More than 65 percent of all the metalcutting machines are used to manufacture spare parts. Consequently, the task is to substantially reduce the material intensiveness of the machines and mechanisms, to lower their energy consumption and to increase reliability and durability.

Significant metal losses occur due to the fact that low-waste and waste-free production methods are still being too slowly introduced. At many enterprises, 25-30 percent of the used metal is lost as scrap. As yet, little usable scrap goes for producing technical products and consumer goods.

A substantial savings in metal and other materials could be obtained by converting to the output of precut or multiple products. The production of standard

gauge glass makes it possible to reduce losses by 30 percent. Moreover, this does not require substantial capital investments.

In the republic great importance is being given to the use of secondary raw materials. In the 10th Five-Year Plan alone, waste products were used to produce 11,000 tons of rubber, over 100,000 tons of reclaimed rubber, 50,000 tons of slag cotton, 100 million m² of fiberboard and 2.7 million m² of chipboard, 350,000 tons of roofing paper and much other product. All of this made it possible to release a large amount of valuable raw products and materials for the economy.

Within the system of the Ukrainian Gossnab there are 12 enterprises involved in the processing of secondary raw materials. Last year they produced 43 million rubles worth of product, including 10 million m² of nonwoven textiles, 334,000 m² of woolen textiles, 3.6 million m² of fleecy jersey fabric and 9,800 tons of cotton wool. During the current year, the first stage of the Kiev Cardboard Combine was put into operation. Its capacity is 100,000 tons of cardboard a year.

The saving of fuel and energy resources is another important and complex task. Over the years of the 11th Five-Year Plan there are plans to save 27 million tons of fuel units. For this we must introduce progressive consumption standards for fuel and energy resources based upon modern energy-saving technology and ensure the maximum utilization of the secondary energy resources which form at the republic enterprises.

A significant fuel savings can be obtained by the fuller utilization of secondary energy resources. In 1981, the output of secondary resources at republic enterprises, recalculated in terms of fuel units, was 31 million tons, including 25 million tons of fuel resources and 6 million tons of thermal ones, while utilization was only 25 million tons.

The eliminating of small boiler systems is a substantial reserve for saving fuel. At present, more than 30,000 small obsolete-design boilers are in operation in the republic and these are responsible for 47 percent of all the generated thermal energy. The elimination of such boiler systems and the connecting of consumers to large central heating plants will make it possible to save annually at least 5 million tons of fuel units.

For successfully carrying out the tasks of rationally utilizing the raw product, fuel-energy and other material resources, the Ukrainian Gossnab in its work constantly interacts with the republic ministries and departments. The Republic Interdepartmental Commission on the Saving and Rational Utilization of Material Resources assists in such interaction and in effectively solving the questions.

The discovery and use of above-norm and unutilized materials for economic circulation is viewed by the Ukrainian Gossnab as an important area of work for the material and technical supply bodies in the area of the rational and economic use of material resources and the fuller supply of economic needs from the available reserves. We fulfilled the quota set for the 10th Five-Year Plan.

This work is also to be carried out widely in the current 5 years. In 1981 alone, the Ukrainian Gossnab organizations put much above-norm and unused

materials and equipment into economic circulation. For example, 336,200 tons of rolled ferrous metals, 57,400 tons of steel pipe, 195,600 m³ of wood and lumber and various equipment totaling 47.6 million rubles.

The effectiveness of the work carried out by the bodies of the Ukrainian Gosstab system in detecting and putting above-norm and unused material resources into economic circulation to a significant degree depends upon the prompt and more complete submission of statistical reporting by the enterprises. Actual work shows that the number of reports received by the statistical bodies significantly surpasses the amount of the same reporting forwarded to the subdivisions of the Ukrainian Gosstab system.

Significant work is being carried out in the area of centralized supply of projects. Each year, the ukr glavkomplekts [Ukrainian main supply administrations for preassembled products and equipment] supply over 1,000 projects, including up to 600 nearly finished ones. The equipment and preassembled articles for these sites are supplied by enterprises from virtually all the Union republics. The Ukrainian Gosstab has established particular control over deliveries to plants which manufacture equipment. This has told positively on the level of utilizing the allocations. The situation has also improved in allocating resources according to delivery dates. We have sought orders for production equipment for nearly completed projects basically 6 months before the completion of the capacity and for the remainder of the equipment, 3 months prior to completion. This guarantees complete supply of the projects, of course under the condition that its delivery plans are fulfilled by the manufacturing plants.

However, we still have unsolved questions. Uneven planning in the completion of projects is still felt. As a rule, up to 68 percent of the nearly completed projects are put into operation in the 4th quarter. This does not help to reduce the balances of uninstalled equipment at the construction sites. Over the last 3 years alone, these balances have increased by 220 million rubles. The problem is that the construction and installation organizations are not capable of installing both the equipment already at the site and that to be delivered during the current year. For this reason, in our view, it is essential to have legislative enactments which would set the dependence of the delivery of equipment and products upon the fulfillment of the amounts of construction-installation work and would also introduce penalties against the general contracting construction organizations and the clients for the presence of uninstalled equipment at the site.

Joint work by the supply organizations and the design institutes has made it possible to significantly improve the quality of the technical documents submitted for review and to determine the equipment needed by the construction sites for the year being planned. However, due to the fact that the technical demands made in ordering the equipment and articles envisage the submitting of an ever-increasing amount of background design and technical documents and in addition due to the lag in designing as a result of a lack of coordinating of capital construction plans by the client ministries with the design plans for the construction projects, there are significant amounts of equipment and products not accepted for delivery due to the lack of technical documents.

Moreover, at present the quarterly delivery dates cannot satisfy either the construction workers or the clients. The time has come to move off "dead center" the settling of the question concerning the issuing of orders for capital construction with a monthly breakdown. Then it will be possible to have the construction and installation organizations work under network schedules and the contracts concluded for deliveries will assume greater significance.

The following question also merits attention. The soyuzglavkomplekts [all-Union main supply administrations for preassembled equipment and articles] each year service many construction projects in machine building, the building industry, light and food industries located on the territory of our republic, without the involvement of the ukr glavkomplekts. As a result, the ukr glavkomplekts are deprived of an opportunity to monitor the deliveries and influence the manufacturing plants since they do not have data on the allocated funds for the basic types of equipment for these projects.

At the same time, over the years of their operations the ukr glavkomplekts have acquired significant experience in reviewing technical specifications and determining the demand for equipment and articles and in solving all questions which arise in the course of construction and the installation of equipment. They are capable of supplying all the projects located on the republic's territory.

Improving the organization and raising the technical level of the warehouse system also play an important role in developing the republic's material and technical supply system. At present, we have 105 enterprises involved in product deliveries and 156 stores for small wholesale trade with a total warehouse area of 2.1 million m². More and more the warehouse system is being equipped with machines and mechanisms. A comprehensive program has been worked out and is being implemented to develop mechanization and automation of loading and materials handling work and for reducing manual labor. In 1981, the mechanization level of the designated jobs was 75 percent.

At the same time, at individual warehouses the job mechanization level is still low. As a rule, such a situation is observed where the warehouses are located in low or decrepit quarters and where it is virtually impossible to employ mechanization. The Ukrainian Gossnab has worked out and approved a comprehensive program for developing the mechanization and automation of warehouse processes and for reducing the use of manual labor in 1981-1985. There are plans to introduce 10 AS-500 automated warehouses, to create 2 automated control systems for stacker cranes, to convert 73 interstack stacking cranes to automated control, to install 52 automated and elevator racks, the elaboration and introduction at 20 warehouses of mechanized lines for processing wrapped piece freight employing load-gripping manipulators, conveyors and transporters as well as to more fully utilize the height of warehouse areas, including by introducing 130 modern-design stacker cranes.

In our opinion, the necessity has arisen of converting the warehouse installations and enterprises involved in product deliveries to around-the-clock operations. This will help to eliminate the above-norm railway car stoppages in loading and unloading, to increase the delivery of products to consumers on the second shift as well as to ensure the making up of freight in the second

and third shifts for centralized product delivery to the consumers. As a result, there will be a significant improvement in the rhythmicalness of deliveries, the turnover rate will increase and the efficiency of depot and warehouse operations will rise.

The further development of the sector requires the automating and mechanizing of labor intensive work and a rise in labor productivity. For this highly skilled personnel are essential. We feel that the time has come for our system to have its own vocational-technical schools and training centers equipped with modern production training facilities. More dormitories and housing for small families must be built to retain the skilled workers.

In recent years, we have given a great deal of attention to developing services in the area of preparing the products for production use. For ferrous metals, the amount of such work has risen over the last 18 months by more than 3-fold and has reached 148,700 tons, for chemical products the increase has been 18 percent and for paper products by 53 percent. There has also been further development of the laying out of industrial glass, the treating of lumber, the batching of tools in small containers as well as copying and duplicating work. Income from the leasing of equipment has risen by 14-fold in comparison with 1980 while the size of the lease fleet has risen by 30 percent. Equipment leasing stations have been set up in 25 republic cities and 13,000 enterprises use their services.

In the system of measures to improve the economic mechanism an important element which helps to improve the operation of our entire economy is the development of direct, long-term production ties. Such ties are organized on the basis of rational schemes and plans for assigning consumers to manufacturers over an extended period within the time for which the five-year economic and social development plan has been approved.

All the republic associations and enterprises with mass and large-series production have been converted to direct, long-term economic ties. By the end of the 10th Five-Year Plan, this progressive form of supply was used for 1,876 republic associations and enterprises with an annual volume of product deliveries of 2.8 billion rubles; this was 1.6-fold more than in 1975.

In carrying out the 5-year quota set by the decree of the USSR Gosplan for broadening direct long-term economic ties, we have increased the amount of schedule orders for 1981, in comparison with 1980, for all the major product types. In 1981, using this progressive form, the consumers received 46.3 percent of the iron and ferroalloys, 43 percent of the rolled metals, 47 percent of the sulfuric acid, 51 percent of the passenger car tires, 94.2 percent of the newsprint. This form was used for the delivery of all the motor vehicles, tractors, tractor trailers, vehicle and small-cc gasoline engines, assemblies and parts, electrical equipment for motor vehicles and tractors, worn out tires and tubes, used glass and waste paper. In 1981, 3.1 billion rubles worth of product were delivered under direct long-term economic ties.

However, the further development of this progressive form of supply has been held up in a number of instances. The soyuzglavsnabsbyts [all-Union main supply and marketing organizations] have often made changes in the schedule order for

products drawn up under the direct long-term economic ties by changing the suppliers. Soyuzglavles [Main Administration for the Supply and Marketing of Lumber Products] makes up a schedule order for lumber by quarters, changing not only the suppliers but also the amounts of deliveries. The soyuzglavsnabsbyts do not fully consider our proposals to increase the amount of product deliveries under these ties.

Guaranteed comprehensive supply has been further developed. Over the years of the 10th Five-Year Plan this has increased by several fold. In the 11th Five-Year Plan there are plans to bring the volume of product deliveries under the conditions of guaranteed comprehensive supply up to 1,638,700,000 rubles, that is, a 2-fold increase by 1985. The number of consumers will be brought up to 878.

At the same time, it is essential to point out that in selling products under the conditions of guaranteed comprehensive supply, including for an emergency reserve for transit deliveries, we have encountered significant difficulties related to the prompt receipt at the enterprises of products in the necessary amounts and required specifications in the deliveries from the supplier plants. For this reason during the current year alone the Ukrainian Gosnab failed to deliver to the customers which had been converted to guaranteed comprehensive supply some 382,000 tons of metal products (11 percent of the amount provided in the contracts), 2,000 tons of nonferrous metals (3.5 percent) and a certain amount of chemical products and machine building products. The nonfulfillment of contractual obligations discredits this form of supply and makes working with consumers more difficult.

The decree adopted by the USSR Gosnab on the priorities for product dispatch to enterprises under deliveries, regardless of the level of fulfilling the production plan, undoubtedly will create conditions for ensuring the 100-percent fulfillment of contractual obligations for product deliveries to enterprises which have been converted to guaranteed comprehensive supply. We feel that the surcharge introduced amounting to 0.2 percent of the wholesale prices in selling products under the procedures of guaranteed comprehensive supply will increase the incentive of the supply and marketing organizations to develop this progressive form of supply as well as their responsibility for forming and implementing the plan for guaranteed comprehensive supply.

In our view, the existing practice of drawing up the orders for allocations assigned to consumers for rolled ferrous metals for the half year, lumber initially with an advance for the first quarter and subsequently for the second-fourth quarters and cement by quarters does not meet present-day requirements. The assigning of annual resources piecemeal, unevenly over the quarters, causes unjustified repeated trips by the workers, it leads to an irrational load on them and necessitates the rewriting of the same documents for the delivery of products.

In the aim of creating better conditions for the high-quality elaboration of material-technical supply plans and their prompt implementation as well as for reducing expenditures on business trips and increasing work efficiency of the staff, it would be advisable to settle the question of a single schedule order

by the soyuzglavsnabsbyts for all production and technical products according to the annual allocations.

In the aim of eliminating the bottlenecks in material-technical supply, the Ukrainian Gossnab each year organizes additional production of scarce materials and equipment using free capacity at the republic's enterprises. Over the years of the 10th Five-Year Plan, 286 million rubles worth of these products were manufactured, in 1981, 44.7 million rubles worth and in the current year there are plans to manufacture 45 million rubles worth. For producing these products we use the material resources of enterprises received under product deliveries with the subsequent replenishing of them from the holdings of the consumers who receive the additionally manufactured products. In the aim of promptly supplying raw materials to ensure the production of scarce product types, the material-technical supply plans for the year being planned should make provision for allocating the necessary material resources.

At present, certain soyuzglavsnabsbyts permit instances of the irrational assigning of consumers to suppliers. As a result, unjustified shipments are made. With the production of a certain product in the republic, it may be ordered from areas of the Urals, Central Asia, the Volga, Siberia and other areas. For example, this occurred in ordering tires of the 260-508 and 735-14 sizes, metal-mesh covered hoses, hydrochloric acid and hydrogen peroxide. The elimination of the irrational shipments for just the listed products would make it possible to free around 5,000 railway cars.

One of the important areas in improving material and technical supply in the republic is the concentrating of material resources in one body, the Ukrainian Gossnab. The presence of a large number of departmental supply-marketing depots leads to the scattering and irrational use of material resources and to an unjustified increase in the cost of the supply process; it creates an artificial scarcity and breakdowns in work.

An analysis of the operations of the departmental organizations has shown that many of them basically provide the delivery of products sold by our system's bodies, they duplicate their activities and here permit irrational reshipments and transloading of the product as well as unproductive transport and warehousing expenses. Thus, at the depots of the Ukrainian Ministry of Food Industry, over 50 percent of the volume of warehouse sales is made up of products supplied by the Ukrainian Gossnab and here 63 percent of the product is shipped directly from the enterprises under deliveries and then from the depots of the ministry's associations to the depots of the consumer enterprises, thereby making three reloadings. Something similar is also observed in the Ukrainian Ministry of Housing and Utility System, the Ukrainian Ministry of Rural Construction and the Ukrainian Ministry of Higher and Specialized Secondary Education.

The concentrating of the functions of supply and marketing, the control and maneuvering of material-technical resources in a statewide supply system has become an objective necessity. During the years our system has existed, the supply-marketing network of the ministries and departments in the republic has been reduced by 123 units with a volume of commodity turnover of 1.3 billion rubles and a total number of employees of around 9,000 persons. Over this time,

a portion of the departmental organizations was eliminated while their functions, physical plant and personnel were turned over to the territorial bodies of the Ukrainian Gossnab.

Calculations indicate that in eliminating parallelism and duplication in the work of the departmental depots and warehouses, a significant savings of material, labor and financial resources would be achieved, flexibility in using them would be increased, the product turnover rate would accelerate and the entire supply process would become cheaper. The warehouse, transport and managerial expenditures would be reduced by 54 million rubles by eliminating irrational shipments and the expenditures of consumers for paying for the warehouse surcharges would be reduced by 35 million rubles.

We have prepared a draft for a new general scheme for managing the republic material and technical supply system. We envisage a further concentration of management on the basis of reducing the number of levels and creating supply-marketing, production-preparation and crating-repair associations. The draft of the general scheme reflects the changes which have occurred in recent years in the system of the Ukrainian Gossnab and it considers the positive development trends in the republic economic complex.

In endeavoring to properly celebrate the 60th anniversary of the formation of the USSR, the Ukrainian workers have widely developed a socialist competition. They are working to further increase the efficiency of social production and work quality, to successfully carry out the quotas of the 11th Five-Year Plan and to economically and rationally utilize all that the national economy possesses. In steadily carrying out the decisions of the 26th CPSU Congress, the republic workers are fully determined to achieve new, higher goals in communist construction.

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REGIONAL DEVELOPMENT

ACCOMPLISHMENTS, PROGRESS OF ARMENIAN INDUSTRY EXAMINED

Yerevan PROMYSHLENNOST' ARMENII in Russian No 6, Jun 82 pp 4-7

[Article by G. S. Sagoyan, deputy chairman of the Armenian Council of Ministers and chairman of the Armenian Gosplan: "The High Targets of Armenia"]

[Text] For six decades now the Armenian economy has developed successfully in the great fraternal commonwealth of Soviet republics, as an organic component part of the single national economic complex. All that has been achieved over the years of Soviet power on Armenian land has been permeated with the undying glow of the immortal ideas of Lenin and is a vivid confirmation of the full triumph and reality of Lenin's nationality policy and the fraternal friendship of all Soviet peoples. The socialist path has disclosed unlimited opportunities for the rapid development of the republic's productive forces, it has ensured the spiritual flourishing of the Armenian people and profound progressive changes in all spheres of their vital activities and has led them to the historic high road of communist creation, free labor and flourishing.

Over these years, Armenia has achieved great successes in the area of economic development and social progress and has been turned from a backward borderland of Tsarist Russia into an industrial-agrarian republic with a modern highly-developed industry, diversified mechanized agriculture, leading science and culture.

The selfless aid of the great Russian people and their working class as well as the aid of the other fraternal republics have played a crucial role in raising the economy of the young Soviet republic.

Due to the creative genius of the people, from five-year plan to five-year plan, the appearance of the ancient Armenian land has been altered. The republic has increased its industrial potential rapidly. In 1940, after just 20 years of Soviet power in Armenia, the gross industrial product exceeded the 1919 level by 32-fold.

The accelerated pace of the republic's industrial production, in exceeding the average indicators for the nation virtually over the entire postwar period, has been one of the most characteristic development traits of its productive forces. This made it possible for the republic to reach high goals of economic construction. The dynamism of this process is clearly seen from the fact that the volume of industrial production over the last 40 years has increased by more than 45-fold.

While in 1913 the share of industry was less than 14 percent in the total volume of national economic product, at present its proportional amount exceeds 70 percent.

Over the recent five-year plans, new industrial sectors have arisen and developed rapidly in Soviet Armenia. These include: the radioelectronics industry, instrument building, precision machine tool building, new production for light chemistry, the motor vehicle, microbiological, medical and gold extracting industries and others.

Particularly impressive have been the development scale of industrial production and its qualitative structural shifts in the 10th Five-Year Plan.

In 1976-1980, the volume of industrial product rose by 46.3 percent and approximately 90 percent of its increase came from the expansion, reconstruction and technical reequipping of existing enterprises and from increasing the efficient use of functioning capacity.

The volume of product from the A group sectors increased by 43.2 percent, and for the B group sectors by 52.4 percent. The proportional amount of consumer goods in the total volume of industrial production in 1980 reached 37 percent in comparison with 33 percent in 1975. In 1980, 2,600 types of superior-quality products were produced and this surpasses by more than 4-fold the level for this indicator in 1975. The share of products with the state Quality Mark in 1980 was 16.2 percent in comparison with 6.5 percent in 1975. During the 10th Five-Year Plan, 175 associations and enterprises completed the elaboration and introduction of comprehensive product quality control systems.

One of the convincing proofs of fundamental changes in the Armenian economy and culture is the constant broadening of ties with the Union republics and foreign nations.

While in the 1960's the republic shipped in significantly more materials for operating the sectors of the economy than it shipped out, starting in 1973, Armenia has had a positive balance for imports and exports and this has increased year by year.

In 1980, the republic shipped out products worth 3.15 billion rubles and shipped in 2.91 million rubles worth. During the 11th Five-Year Plan outbound shipments will rise by 33 percent and inbound by 31 percent.

Our republic dispatches its products at present to virtually all the Union republics and oblasts of the USSR without exception and also exports over 150 types of industrial goods to foreign nations.

In the republic's economic interrepublic ties the largest proportional share is found for the RSFSR (the Central, Northern Caucasus and Western Siberian regions), the Ukraine and the Transcaucasian republics.

The republic ships in ferrous metals, oil products, gas, equipment and machinery, lumber, grain, as well as raw materials for producing a diverse assortment of products for the chemical and light industries and foodstuffs.

The machine building products shipped into the republic go basically for forming the active portion of fixed capital (that is, equipment) as well as cultural and household goods (TV sets, radio receivers, washing machines and sewing machines, refrigerators and so forth).

The basic products shipped out of the republic are mobile power plants, generators, transformers, metal cutting machines, instrument building products, computers, cable products, motor vehicle tires, synthetic rubbers, industrial rubber products, mineral fertilizers, garments and knitwear, footwear, textiles and wine and liquor products.

The role of Soviet Armenia is constantly growing in the all-Union territorial division of labor. The republic is specialized in producing individual types of products from the chemical industry, nonferrous metallurgy, the electrical engineering industry, instrument building, textile-knitwear, wine-liquor and canning industries. The rapid development of power has been of exceptionally important significance in the fundamental changes of the republic's productive forces and in ensuring economic growth and social progress.

Suffice it to say that with the completion of the Razdan GRES, the Tatev GES, the Shambaskaya GES and the Armenian AES in the 1970's, electric power production over the 10 years rose by 2.2-fold and in 1980 reached 13.5 billion kilowatt hours. This made it possible not only to fully cover the needs of the republic economy for electric power but also to transmit over 2.7 billion kilowatt hours of electric power to the Unified Power System of the Transcaucasus.

Machine building has undergone particularly rapid development in the republic. In 1976-1980, the volume of machine building production increased by 74 percent with 46.3 percent for all of industry; the growth of labor productivity was, respectively, 23.4 and 21.0 percent. The proportional amount of machine building products in the total volume of industrial product was 28 percent in 1980.

The historic decisions of the 26th CPSU Congress open up broad prospects for the development of republic industry in the 11th Five-Year Plan.

The volume of industrial production is to increase by 31 percent. The trend will be continued for the more rapid development of products which directly satisfy the needs of the population. The production volume for the A group of sectors is to increase by 30 percent and for the B group of sectors by 32 percent. In contrast to the 10th Five-Year Plan, in the production volume of consumer goods the output of cultural and household goods will grow most rapidly (39.5 percent). This will conform to the present increased purchasing power of the population for these goods.

Particularly important from the aspect of ensuring progress in consumption are the planned structural shifts in such sectors as the radio industry, the electronics and electrical engineering industry, machine tool building, where there is a good technical base making it possible to organize large-scale specialized production of consumer goods and ensure their proper quality level. For this reason, in 1981-1985, the output of cultural and household goods is to increase significantly more rapidly than the basic product of these sectors.

In the new five-year plan, particular attention has been paid to the steady growth of electric power. The generating of electric power is to rise by 17.1 percent with a more rapid pace for its output at the nuclear power plant. The Spandaryanskiy GES is to be put into operation, power transmission lines more than 900 km long are to be built and expansion will be started on the Armenian AES.

In the aim of improving the supply of natural gas to the population in the mountainous areas of the republic, a gas line is to be built between Dzhermuk--Azizbekov--Yekhegnadzor with work to be completed in 1985.

In nonferrous metallurgy there is to be the more complete and comprehensive use of the reserves of nonferrous and rare metal ores, the industrial exploitation of ores with a lower metal content by improving the concentration processes and increasing the degree of their extraction.

The further development of the chemical industry is envisaged in a direction of expanding, reconstructing and technically reequipping the existing enterprises as well as creating new small-tonnage production of pure compounds and household chemical products.

The production of synthetic powders is to rise by 1.5-fold, for synthetic resins and plastics by 34.5 percent, for chemical fibers and filaments by 20.6 percent and for household chemical goods by 1.4-fold.

The volume of machine building products is to increase by 58.6 percent and its proportional amount in the total volume of industrial production should rise to 33.7 percent. Intersectorial production for producing general machine building products will undergo further development. In the total output of metal cutting machines, the production of machine tools with high and particularly high precision as well as program controlled machines will rise by 68.4 percent.

For satisfying the ever-increasing needs of capital construction and due to the availability of rich raw material resources, the building materials industry is to be further developed. There will be a significant increase in the output of large-sized structural asbestos cement sheet which is in great demand as well as asbestos cement pipe and sleeves. The production of ceramic articles will be further developed including floor tile, glazed facing tile, drainage pipe and so forth. The output of facing tile made from natural stone as well as felsite and travertine tile will be significantly increased due to the rapid development of large-panel and frame-panel construction and the need to preserve the national architecture of stone construction.

In the new five-year plan, there is to be the further development of the light and food industry sectors, the volume of which will increase, respectively, by 35.6 and 13 percent mainly due to increased capacity and technical reconstruction of existing enterprises, the more intensive use of production area and the replacing of obsolete equipment by highly productive.

There is to be a significant increase in the output of goods which are in high demand such as: woolen textiles by 26 percent, silk textiles by 25 percent,

knitted underwear by 37 percent, outer knitwear by 51 percent and leather footwear by 23.5 percent. Here there is to be an annual (by at least 75 percent) renewal of the assortment of light industry products as well as an increase in the output of fashionable popular goods.

In the food industry sectors there is to be an increase in the output of packaged goods, ready-to-consume products, semifinished goods, culinary products and the wider use of new packaging materials which ensure the extended storage and reduce food product losses.

In the aim of efficiently using a high-quality local raw material, the geranium, as of 1985 a new sector of industry, the pharmaceutical-cosmetic, will be organized in the republic.

The consistent implementation of a system of measures to more rationally locate the scientific-production potential of industry will help in successfully carrying out the economic and social tasks confronting republic industry in the new five-year plan.

One of the major social victories has been the presence in the republic of a broad network of general education schools, higher and secondary schools, vocational-technical schools and evening schools for working youth. At present, one out of three inhabitants of Armenia is engaged in one or another form of instruction.

The 13 VUZes and 63 specialized secondary schools train specialists for virtually all the specialties needed by the national economy. In terms of the number of students per 100 persons of the population, our republic holds first place in the nation.

The republic Academy of Sciences is a major center of scientific thought bringing together scientists from the most diverse areas of knowledge. Here research is successfully being developed in the area of mathematics, physics, astrophysics, biology and so forth.

Characteristic of Armenian science is the fact that many research projects commenced at the Academy of Sciences have subsequently been broadened and have served as the basis for creating major sectorial scientific research institutes which, in turn, have been a scientific base for the development of the corresponding national economic sectors.

Capital construction carried out on a grandiose scale has played a crucial role in ensuring the rapid development of the republic's economy and culture and increasing the prosperity of the workers. Suffice it to say that in 1971-1980, more money was invested in the Armenian economy than over all the previous 50 years.

The constructing of a number of major republic projects has been possible solely due to the unstinting fraternal aid of the peoples of all the USSR.

In approaching our glorious jubilee, we think with particular warmth and pride about our great multinational nation and about the friendly, united family of

Soviet peoples which on the basis of Lenin's legacy is building its happy life with such energy and such scope.

The beauty of renewal, powerful creativity and the greatest accomplishments of the people--this is what we see in looking back over the path the USSR has traveled over the six decades.

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REGIONAL DEVELOPMENT

ECONOMIC, SOCIAL DEVELOPMENT OF NATIONAL AUTONOMOUS GROUPS IN RSFSR

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[Article by D. Bogorad, doctor of economic sciences]

[Text] The RSFSR is the largest multinational Union republic in our country. Over 100 nations and nationalities are living on its territory. It has 16 autonomous republics, 5 autonomous oblasts and 10 autonomous okrugs. They are characterized by a diversity of their natural, historical and economic conditions, and of the directions of their productive resources' development.

In czarist Russia the outlying national districts were the most backward economically; their non-Russian nationalities were deprived of rights, subjected to humiliation and abuse, were mostly illiterate and called "persons of foreign race." After the victory of the Great October Revolution, under the leadership of Lenin's party and with the Russian nation's selfless assistance, all these nationalities skipped the capitalist stage of development, confidently entered the socialist future and have attained the heights of social progress. "As the first multinational Soviet state, the RSFSR was the prototype of the Soviet Union. Disregarding the difficulties and sacrifices, the Russian nation rendered the other nations of the country selfless assistance in defending the achievements of the revolution and made an invaluable contribution toward overcoming the backwardness of the former outlying national districts."¹

At the same time the economic and social development of the national autonomies has been one of the most important factors of the entire construction of socialism in the Soviet Union. As noted in the Decree of the CPSU Central Committee on the 60th Anniversary of the Founding of the Soviet Union, the unity of the country's nations has been hardened and strengthened in the course of industrialization, agricultural collectivization and cultural revolution, in the struggle for building socialism. The development of the national autonomies has been inseparably linked with the shifts in locating productive resources. Their development has been based on the shifts in the location of productive resources and in its turn has influenced these shifts, contributing significantly toward drawing the country's new economic map, in accordance with the laws of the socialist economy.

In his article entitled "About the Food Tax," V. I. Lenin wrote the following in 1921 about what the economic map of Russia had been like before the revolution: "Look at the map of the RSFSR. North of Vologda, southeast of Rostov-na-Donu and

Saratov, south of Orenburg and Omsk, and North of Tomsk there are vast areas that could easily accomodate tens of developed states. And on all these areas there are only the remnants of patriarchal society, semiwilderness and total wilderness."² These areas were partially occupied by the outlying national districts.

In prerevolutionary Russia, just as in any other capitalist country in the world, the law of the uneven location of productive resources prevailed. Within the borders of the RSFSR at that time, this law manifested itself specifically in the concentration of practically all manufacturing on the relatively small area of the so-called developed industrial regions that had metropolitan status in the Russian Empire, while the many other regions were its semicolonial and colonial raw-material appendages with predominantly agricultural economies.

V. I. Lenin was the first to formulate new principles for the location of productive resources, based on the Marxist-Leninist theory of building a socialist society. These principles have been the foundation of our party's strategy during all the stages of building socialism in the Soviet Union. In an article entitled "Outline of a Plan of Scientific and Technical Studies,"³ V. I. Lenin set forth the basic rules for the reorganization of industry and the uplift of the Russian economy. Considerable attention was devoted to the sound location of industries, from the viewpoint of bringing them closer to their sources of raw material, to ensure the lowest possible expenditure of labor for its subsequent processing (up to obtaining the finished product), and to use fuel at the lowest possible cost of its mining and transportation. All this in the final outcome must ensure economical expenditure of society's resources and a higher productivity of social labor. Practical realization of the presented principles became possible only under conditions of the social ownership of the means of production and centralized planning of the national economy, in combination with wide local initiative, which ensured the economic, social and cultural development of all regions in the country, including the national autonomies.

Lenin's ideas regarding the location of productive resources were reflected in the GOELRO [State Committee for the Electrification of Russia] plan. This plan stated in part: "One cannot help but foresee that the rationalization of our industry will be accompanied by a significant relocation of industries around the country, in order to bring them closer to their sources of raw material and fuel, or for general economic considerations."⁴ These principles were implemented in the elaboration of all subsequent national economic plans. They determined the specific features of the industrialization of the country's individual economic regions and of the national autonomies.

In the first stage of building socialism, the party's Leninist nationality policy had a particularly strong influence on the shifts in the location of productive resources. The resolution adopted by the 10th party congress (in 1921) emphasized that the foremost task of the revolution in the outlying eastern districts was "to consistently liquidate all remnants of national inequality in every branch of social and economic life, and first of all to spread industry to the outlying districts in a planned manner, by moving factories closer to their sources of raw material"⁵

In every stage of the construction of socialism on the territory of the RSFSR, the most significant in terms of scale were the shifts of productive resources from the developed industrial regions eastward: predominantly to the Volga Area and the Urals in the prewar period; and in the postwar period, predominantly to Siberia and the Far East where the bulk of Russia's fuel, electric power and mineral resources are concentrated. The second most significant shift was northward, to the European North; and the third, southward to the North Caucasus. Accordingly, the economic and social potential of the national autonomies also grew.

In the prewar period, significant changes occurred in the location of the country's petroleum industry. The Volga Area became the most important petroleum-producing region, "a second Baku." Here the Bashkir ASSR occupied a prominent place; in addition to petroleum production, also its processing developed there. Engineering industry centers arose in the Bashkir and Tatar ASSRs. The production of synthetic rubber also was established in the Tatar ASSR, marking the commencement of the industrialization of the national autonomies in the Volga Area.

Development of the Ural-Kuzbass [Kuznetsk Coal Basin] complex--it included also many other industries in addition to the principal one: ferrous metallurgy, and coal mining--provided a real stimulus for the development of the national autonomies. Sectors of the metallurgical, engineering, lumber and wood processing industries began to develop in the Udmurt ASSR (Urals); the lumber industry and livestock production, in the Gorno-Altay Autonomous Oblast (southern part of West Siberia). The Noril'sk mining and metallurgical complex (Taymyr Autonomous Okrug) in the northern part of East Siberia was built in the prewar period. In the southern part of East Siberia--in the Buryat ASSR and the Khakass Autonomous Oblast--industries for the mining of nonferrous and rare metals, the coal industry and the lumber industry began to develop; and in the Khakass Autonomous Oblast, also the mining of iron ore.

In the European North, the production of petroleum and natural gas began in the Komi ASSR, and the lumber and wood processing industry developed in the Karelian ASSR.

The national autonomies of the North Caucasus underwent industrial development. The petroleum industry developed in the Adyge Autonomous Oblast; and the petroleum, natural gas, and rare metals industries, in the Dagestan ASSR. The production of equipment for the petroleum industry was established in the Chechen-Ingush ASSR.

Thus already in the prewar period, when the process of wide-scale changes in the territorial structure of the RSFSR economy was still in its initial stage, many of the national autonomies acquired--in accordance with their local natural, economic and other conditions--distinguishing features reflecting their branch specialization and role in the interregional division of social labor. In every national autonomy there developed, besides heavy industry, also branches of light industry and the food industry based on the processing of local raw materials; agriculture, on an improved technical basis and under new social conditions (kolkhozes, sovkhoses); and the problems of improving transportation services likewise were solved.

Significant changes occurred in the social sphere. Illiteracy of the indigenous population was essentially liquidated. In 1939, in the national autonomies of the RSFSR the number of persons with secondary (complete or seven-year) or higher education ranged from 80 to 100 persons per 1000 population and was even higher in some national autonomies (150 in North Osetia, 153 in Karelia), as compared with the RSFSR average of 109 persons per 1000 population. The national autonomies produced their own intelligentsia. The combined total run of the books published in 1940 in the languages of the indigenous nationalities within the borders of the RSFSR was 11.8 million copies.

The evacuation of a considerable number of large industrial enterprises from the Soviet Union's western regions to the Volga Area, the Urals and Siberia during the Great Patriotic War, with most of them remaining there after the war, considerably strengthened the industrial development of these regions. This was reflected in the economies of the national autonomies located there.

In the postwar period, large-scale programs for establishing territorial complexes were launched in the eastern RSFSR to develop the productive resources: to enlarge the capacities of the Ural-Kuzbass complex, and to develop the unique energy and other resources of the Angara-Yenisey basin. In his report to the 26th CPSU Congress, L. I. Brezhnev said: "Large-scale changes in the location of productive resources are a characteristic feature of the 1970's. In accordance with the resolutions of the 25th CPSU Congress, territorial complexes are being formed in the European part of the RSFSR, in the Urals, in Siberia, the Far East, Kazakhstan and Tajikistan."⁶ The BAM [Baykal-Amur Trunk Line] is being built, and the main petroleum-producing base of the Soviet Union is being developed in West Siberia.

Among the national autonomies in the eastern part of the RSFSR, the Khanty-Mansiysk and the Yamalo-Nenetsk autonomous okrugs, where petroleum and natural gas deposits were uncovered, have undergone the greatest change. In 1980, 313 million tons of petroleum (including gas condensate) were produced here, 52 percent of the Soviet Union's total petroleum output, and 57.2 percent of the total petroleum output of the RSFSR. Also 156 billion cubic meters of natural gas, 36 percent of the total natural gas output for the Soviet Union and 61.4 percent of the total RSFSR gas output. Under the 10th Five-Year Plan, the increase in the output of petroleum was 1.5 times higher in West Siberia than nationally and 3.7 times higher than in the RSFSR, compensating for the decline of petroleum production in the other regions of the country. The increase in the output of natural gas was 82 and 104 percent, respectively.

On the territory of the Khanty-Mansiysk and Yamalo-Nenetsk autonomous okrugs there has appeared a network of pipelines that is one of the largest in terms of its size, technical equipment and capacity; all modes of public transport have been developed; huge petrochemical and electric power plants are under construction; and the lumber and wood processing industry is developing. At present these national autonomies, once among the most backward outlying national districts of Russia, are a highly industrialized region. Their combined total population has increased from 141,000 in 1939 (when petroleum was not yet discovered) to 865,000 in 1980; within this the urban population

has increased from 21,000 to 668,000. Scores of urban-type communities have developed here, whereas in the past there was not even one such community. Outstanding among them in terms of size are Surgut and Nizhnevartovsk. However, the development of the social infrastructure is still lagging in these rayons, causing intensive labor migration. The unsatisfactory state of highway transport and inland navigation complicates the importation of machinery and equipment for the enterprises of the petroleum and natural gas industries. Elimination of these shortcomings belong among the tasks for the immediate future.

In the northern part of East Siberia, the capacity of the Noril'sk mining and metallurgical complex was expanded considerably under the 10th Five-Year Plan parallel with the increase of its raw-material base that is still not being fully utilized. The complex is linked with the port of Dudinka, in the lower reaches of the Yenisey, by a short railroad that is the northernmost railroad in the Soviet Union. A large number of mining enterprises are located near the complex.

In the southern part of East Siberia, the economy of the Buryat ASSR underwent rapid development in the postwar period. Many of the enterprises built before the war have been modernized, and their capacities have increased; and quite a few new enterprises have been built. The leading industries of the republic are the lumber and wood processing industries (sawmills, paper and pulp), engineering, nonferrous metallurgy (the production of molybdenum and tungsten concentrates). The building materials industry has grown noticeably (although it still remains a bottleneck in capital construction), and the same can be said of the food industry (basically meat packing). The output of sawed lumber has risen from 207,000 cubic meters in 1940 to 1,323,000 in 1980, a 6.4-fold increase. The output of meat has more than doubled. Livestock production in the republic specializes in raising semifine- and fine-fleece sheep.

The largest industrial enterprises in the Buryat ASSR that are of interregional significance include the Selenginsk cardboard and pulp complex, the Ulan-Ude railroad car repair shop (it repairs the rolling stock of the railroads in the eastern part of the Soviet Union), a boatyard and the Electrical Machinery plant (likewise in Ulan-Ude), the Selenduma woodworking machinery plant, the Dzhida tungsten and molybdenum complex, and the Timlyuy cement factory.

The other national autonomies in the southern part of East Siberia also have developed. The output of coal, supplied to the power plants of Krasnoyarsk Kray, and the output of iron ore for the Kuznetsk metallurgical complex have increased. Predominant growth of light- and food-industry capacities is characteristic of the Jewish Autonomous Oblast.

In the Far East the economic potential of the Yakutsk ASSR has increased considerably. It is the largest of the national autonomies in the RSFSR, more than 3.0 million square kilometers in area. During the past 10 years, the fixed productive capital of industry in the Yakutsk ASSR increased 3.3-fold. Industry accounts for more than 80 percent of the republic's gross output.

Mining is the key industry. The mining enterprises that mine gold, lead, rare metals, mica and coal have undergone radical technical modernization. New deposits have been developed. New industries include diamond mining, natural gas

production, and the power industry. In logging the annual cut has increased considerably. The output of sawed lumber in 1980 was 7.5 times greater than in 1940. Large-scale measures were adopted under the 10th Five-Year Plan to develop the coal and iron ore deposits of Southern Yakutia, where the republic's first territorial production complex is being formed. The traditional branches of the economy--reindeer breeding, fur trapping and fur farming--have been perfected.

The bottleneck in Yakutia's economic development is its isolation from the country's railroad network, which means that freight arriving in the ocean ports and railroad junctions is "frozen" for long periods of time. Construction of the BAM-Tynda-Berkakit railroad (to the deposits of coking coal in Southern Yakutia) has partially improved the situation, but has not solved the problem of providing transportation for Yakutsk. In the long run this railroad line will be extended to Yakutsk, which will affect favorably the development of productive resources in the republic and in the northeastern part of the Soviet Union.

The production capacities of the Chukotsk Autonomous Okrug have noticeably increased in the postwar period. Gold and rare metals are mined here, and fishing and coal mining have been developed. Andyr, the okrug's administrative center, has become an important port along the Northern Sea Route.

The industrial development of the Urals in the postwar period is reflected in the economy of the Udmurt ASSR. Ferrous metallurgy, engineering, the lumber and wood processing industry, the construction industry, and also light industry and the food industry are developed on a considerable scale on the territory of the Udmurt ASSR. Izhevsk, the administrative center of the republic, is a large industrial center. It has a metallurgical plant that produces high-quality metal; engineering enterprises that produce electric motor, radio equipment, construction machinery, motorcycles and other types of products; enterprises that repair industrial equipment and tractors; a combine that produces prefabricated building components, etc.

The level of industrial development has risen in the national autonomies located in the European North: the Karelian ASSR, Komi ASSR and the Nenetsk Autonomous Okrug. Based on the extensive utilization of the high-grade coal deposits in the Pechora basin, of the petroleum and natural gas deposits of the Ukhta and Dzhebal fields, and of the timber in the forests that cover a significant proportion of the area of the Komi ASSR, this republic has become a developed industrial region of the RSFSR. The resolutions adopted by the 26th CPSU Congress call for continuing the formation of the Timan-Pechora territorial production complex based on the fuel, electric power, ore and timber resources of the Komi ASSR and the Nenetsk Autonomous Okrug, and for installing additional paper-making capacity at the Syktyvkar lumber industry complex. An important task is to upgrade the industrial and social infrastructure of the complex. In comparison with the prewar period, the annual timber cut has risen sharply, and the output of sawed lumber has increased sevenfold.

Petroleum and natural gas were discovered recently in the Nenetsk Autonomous Okrug. The production of natural gas has already begun. The gas is piped through a short pipeline to Nar'yan-Mar (the okrug's center) for industrial and household use. The Khar'yagin oil field in the southern part of the okrug is to be developed under the current five-year plan. Amderma in the northeastern part of the okrug is an important port along the Northern Sea Route.

The lumber industry is the most important branch of the Karelian ASSR's economy, and a significant proportion of the timber cut is processed locally. The output of sawed lumber in 1980 was 2.4 million cubic meters, 2.4 times the 1940 level. The pulp and paper, veneer, furniture, home-building and wood-distillation industries have been developed. A number of engineering enterprises have been established. Prominent among them are a plant that produces papermaking equipment (the only plant of its kind in the Soviet Union; it supplies the pulp and paper industry and also exports), and a tractor plant that supplies tractors for forestry and the lumber industry. Nonferrous metallurgy has been established, and the fishing industry is being reequipped and expanded.

Less intensive were the shifts in the industry of the Volga Area and North Caucasus in the postwar period. Predominantly the tasks of modernizing and expanding existing enterprises were solved here. The favorable soil and climatic conditions favored the development of agriculture.

The Volga Area economic district includes the Bashkir, Tatar and Kalmyk ASSRs. Until recently, petroleum production developed rapidly in the first two republics. With the depletion of reserves at the depths from which petroleum was being produced, and with the worsening of the technical and economic indicators, however, the output of petroleum stabilized and then began to decline. Development of the West Siberian petroleum and natural gas complex is compensating to an increasing extent for the decline of the output. On the basis of the petroleum produced in the Volga Area, the petroleum processing industry is growing in the Bashkir ASSR. Its output is used partially as feedstock for the petrochemical industry locally, and partially is exported to the other European regions of the Soviet Union. The casing-head gas is processed in Bashkiria and Tataria into casing-head gasoline and liquid gasoline. There are large synthetic rubber plants in Sterlitamak (Bashkiria) and Kazan (Tataria). Salavat (Bashkiria) has a plant for manufacturing nitrogen fertilizers. Sterlitamak has a developed caustic soda industry, based on local deposits of salt and limestone.

Engineering occupies a prominent place in the industry of the Volga Area, thanks to the district's economic geography and its proximity to the metallurgical bases in the Urals and the Ukraine. There are large engineering centers in Ufa in Bashkiria (motorcycles, equipment for the petrochemical industry, etc.) and in Kazan in Tataria (machine tools, farm machinery, equipment for the chemical industry, etc.). But there are considerable reserves and unutilized production capacities also in engineering. Branches of light industry, the food industry and agriculture are developed in both autonomous republics. In the Tatar ASSR grain production increased from 1.8 million tons in 1940 to 3.2 million tons in 1980; meat production (carcass weight), from 48 to 221 thousand tons; and milk production, from 379,000 to 1,290,000 tons. The corresponding increases in the Bashkir ASSR are: grain, from 2.2 to 5.4 million tons; meat, from 75 to 274 thousand tons; and milk, from 453,000 to 1,612,000 tons.

The population of the old cities in the Tatar and Bashkir ASSRs has increased, and new cities and worker settlements have appeared.

In the Kalmyk ASSR, agriculture remains the main branch of the economy also in the postwar period. Livestock production is the principal branch of farming, since the extensive pastures and meadows that cover more than 85 percent of

the republic's area provide favorable conditions for it. Livestock production specializes basically in raising fine-fleece sheep and partially also karakul sheep. Within the industrial structure of the Kalmyk ASSR, fishing and the processing of animal raw materials--sheepskins, milk into cheese, and wool scouring--are the principal industries.

The national autonomies of the North Caucasus--the Dagestan, Kabardino-Balkar, North Osetian and Chechen-Ingush ASSRs, and the Karachevo-Cherkess and Adyge autonomous oblasts--have made considerable progress. In planning their economic development, the multinational composition of the autonomies, the unique climatic and natural conditions, and the traditions of cottage industry were taken into consideration. Measures have been adopted to develop sanatoriums, spas, tourism and sports facilities.

Among the national autonomies of the North Caucasus, the Chechen-Ingush ASSR has the highest level of industrial development. The principal industries are petroleum production and processing. Groznyy, the capital of the republic, is an All-Union center of the petroleum refining and petrochemical industries. The engineering industry that produces here equipment for the petroleum industry ships its output to many petroleum-producing regions of the Soviet Union. Light industry and the food industry are developed. Thanks to irrigation with water drawn from the Terek, agriculture is developing in the autonomous republic. Besides growing grain and industrial crops, orchard farming and viticulture are gaining in significance. Raising fine-fleece sheep is the dominant branch of livestock production.

The Dagestan ASSR lies east of the Chechen-Ingush ASSR, along the Caspian Sea. It has a developed petroleum and gas industry. Both the associated gas and the natural gas are used in industry and households. The Dagestanskiye Ogni Glass Factory has been modernized and expanded. Fruit and vegetable canning, wine-making and fishing are important branches of industry. The traditional cottage industries--rugs, jewelry, pottery, pelt processing, etc.--have been improved technically and have increased in volume. Viticulture has become the leading branch of agriculture, and on its basis winemaking has developed. In addition to grain, melons are grown extensively, and the growing of citrus fruits is being developed. As the most important branch of livestock production, sheep breeding with its own feed and fodder base has improved, but not sufficiently as yet.

The mining and enrichment of tungsten and molybdenum ores, hydroelectric power generation, and the mining of coal and turf deposits are playing an increasing role in the industry of the Kabardino-Balkar ASSR. Manufacturing enterprises are concentrated mostly in Nal'chik. The production of cement, glass, engineering (instruments, pumps and construction machinery), light industry (wool, cotton, hosiery, the production of Caucasian felt boots), and the food industry (meat, and confectionery) are developed in the autonomous republic. The principal crops in the republic are winter wheat, corn, and sunflower. Such types of irrigation farming as orchards and vineyards have been developed considerably. In the mountainous parts of Kabardino-Balkaria livestock production is the dominant, and orchard farming is developing increasingly.

Agriculture is the principal branch of the Karachayevo-Cherkess Autonomous Oblast's economy. It specializes basically in growing corn, wheat, potatoes and

pulses. The potatoes are shipped from here to the other regions of the North Caucasus and to the Trans-Caucasus. The breeding of dual-purpose cattle and of sheep is developing successfully. Industry is concentrated mostly in Cherkessk (the administrative center of the oblast) and in Karachayevsk. Light industry and the food industry are the dominant. The nationally famous spa of Teberda is located in the oblast. It has a large number of sanatoriums, tourist facilities, and camps for mountain climbers.

South of Kabardino-Balkaria is the North Osetian ASSR. It has a developed poly-metallic industry based on the Sadon and Buron deposits of polymetallic ores that are enriched at the mines. The republic, specifically the city of Ordzhonikidze, has chemical, construction, wood-processing, meat-packing, fruit- and vegetable-canning, and light-industry enterprises. The city of Beslan has a corn-processing combine, the largest in Europe, that extracts oil from corn. In the republic, on the Terek River, there is a hydroelectric power plant that was built after the war. The characteristics typical of agriculture in the national autonomies of the North Caucasus can be found also in this republic.

West of the Kabardino-Balkar ASSR lies the Agyde Autonomous Oblast whose economy is predominantly agricultural. In addition to the branches of farming that can be found also in the other national autonomies of the North Caucasus, considerable attention has been devoted here to growing bright-leaf tobacco, hemp, aromatic oil plants and subtropical crops (tea, lemon), to horse and poultry breeding, and to beekeeping. The food industry is the dominant industry, including the tobacco industry, fruit and vegetable canning, the dairy industry, and the processing of oil seeds.

The intensive industrial development of national autonomies in the RSFSR during the postwar period has radically changed their economic and social aspect. It has been characterized by a sharp rise of the urban population and by the formation of large cities, which applies particularly to the principal industrial centers of these autonomies, as evident from the data in Table 1.

Most of the cities listed in the table are characterized by a housing stock that has a high level of public services and amenities (district heating, gas and water supply, etc.). Many of them are large scientific and cultural centers. The Tatar, Bashkir, Karelian and Komi ASSRs have affiliates of the Academy of Sciences USSR, with a network of scientific-research institutions. The Yakutsk and Buryat ASSRs have affiliates of the Siberian Department of the Academy of Sciences USSR that likewise have scientific-research institutions. All the listed cities have higher and secondary vocational educational institutions, with a large enrollment.

On the eve of the war, the specialized secondary schools in the national autonomies of the RSFSR had a total enrollment of 200,000 students; their present enrollment is over 350,000. Under the 10th Five-Year Plan, enrollment in the vocational and technical schools increased from 11,500 to 164,300. During the postwar period, enrollment in higher educational institutions increased more than 11-fold, to 310,000. The combined total run per issue of the newspapers printed in the national autonomies of the RSFSR has increased from 79,000 in 1940 to 546,000 or nearly sevenfold; and the number of books and magazines in

Table 1. Population Growth of the Largest Industrial Centers in the National Autonomies of the RSFSR

	City	Residents (1000) on 1/17/80*	1/1/81**	Growth factor
Eastern RSFSR				
Khanty-Mansiysk Autonomous Okrug	Surgut	-	137	-
	Nizhnevartovsk	-	134	-
Taymyr Autonomous Okrug	Noril'sk	14	184	13.1
Buryat ASSR	Ulan-Ude	126	310	2.5
Khakass Autonomous Oblast	Abakan	37	136	3.7
Jewish Autonomous Oblast	Birobidzhan	30	72	2.4
Yakutsk ASSR	Yakutsk	53	159	3.0
Urals				
Udmurt ASSR	Izhevsk	176	574	3.3
Volga Area				
Bashkir ASSR	Ufa	258	1009	3.9
Tatar ASSR	Kazan	406	1011	2.5
Kalmyk ASSR	Elista	17	74	4.3
European North				
Karelian ASSR	Petrozavodsk	70	241	3.4
Komi ASSR	Syktyvkar	24	180	7.5
North Caucasus				
Chechen-Ingush ASSR	Groznyy	172	379	2.2
Dagestan ASSR	Makhachkala	87	269	3.1
Kabardino-Balkar ASSR	Nal'chik	48	213	4.4
Karachayevo-Cherkess ASSR [sic]	Cherkessk	29	94	3.2
North Osetian ASSR	Ordzhonikidze	131	287	2.2
Adyge Autonomous Oblast	Maykop	56	132	2.3

* Data from "Narodnoye khozyaystvo RSFSR za 60 let" (Sixty Years of the RSFSR Economy), Moscow, "Statistika", 1977.

** Data from "Narodnoye khozyaystvo RSFSR v 1980 g." (The RSFSR Economy in 1980), Moscow, "Finansy i statistika", 1981.

the local libraries has increased 15.5-fold, from 1.1 to 17.8 million copies. Among the workers employed in the economies of most autonomous republics within the RSFSR, the proportion of persons with higher or secondary (complete or seven-year) education exceeds 80 percent, whereas before the war their proportion fluctuated between 10 and 15 percent.

Medical care for the populations of the national autonomies of the RSFSR has improved. The number of doctors per 10,000 population varies between 30 and 40, which is in accord with the average for the RSFSR. (In some national autonomies the number of doctors per 10,000 population is much higher: 44.2 in Karelia and 56.3 in North Osetia.) These figures are 10 to 12 times the prewar level. The retail turnover of the state and cooperative stores increased 1.9-fold over the prewar level, and the volume of consumer services increased 1.5-fold.

In his report to the 26th CPSU Congress, L. I. Brezhnev said: "From the very first years of Soviet rule, our economic and social policy has been formulated so as to raise as quickly as possible the former outlying national districts of Russia to the level of its center. This task has been solved successfully. An important role in this respect has been played by the close cooperation of all nations of the country, and by the selfless help of the Russian nation in particular. Comrades, backward outlying national districts no longer exist."⁷ The data presented in this article illustrate this basically important situation which is of great historical significance.

Also under the 11th Five-Year Plan, the RSFSR is confronted with enormous tasks for further developing and improving the location of productive resources, for utilizing the natural resources more efficiently, for the extensive practical application of the advances in science and technology, and for raising the effectiveness of production. The national autonomous republics will actively participate in the solution of these tasks, especially in the petroleum and natural gas, coal, petrochemical, lumber and wood processing industries, on the basis of the more complete and comprehensive utilization of their natural resources. Parallel with the growing industrial potential and the higher level of agriculture, also the material well-being and cultural level of the workers will improve, which is the supreme objective of the CPSU's economic strategy.

FOOTNOTES

1. PRAVDA, 21 February 1982.
2. V. I. Lenin, "Polnoye sobraniye sochineniy" (Complete Works of), Vol 43, p 228.
3. V. I. Lenin, op. cit., Vol 36, pp 228-231.
4. "Plan elektrifikatsii RSFSR" (Plan for the Electrification of the RSFSR), Moscow, Gostekhizdat, 1970, p 170.
5. "KPSS v rezolyutsiyakh i resheniyakh s"yezdov, konferentsiy i plenumov TsK" (The CPSU in the Resolutions and Decisions of Its Congresses, Conferences and Central Committee Plenums), Part 1, Moscow, Gospolitizdat, 1954, p 560.
6. "Materialy XXVI s"yezda KPSS" (Proceedings of the 26th CPSU Congress), Moscow, Politizdat, 1981, p 33.
7. Ibid., p 55.

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REGIONAL DEVELOPMENT

DEVELOPMENT OF UPPER LENA TERRITORIAL PRODUCTION COMPLEX

Moscow SOVETSKAYA ROSSIYA in Russian 30 Jun 82 p 2

[Article by V. Gukov, candidate of economic sciences, department chief of the Institute for the Economics and Organization of Industrial Production, Siberian Branch of the Academy of Sciences USSR, in the column "Siberia: Strategy of Development": "A Complex Needs a Master"]

[Text] On the western section of BAM [Baykal-Amur Trunk Line], the first express train ran between the stations of Ust-Kut and Kunderma last fall. The opening of this section of BAM to traffic significantly improved the transportation economics of forming here the Upper Lena Territorial Production Complex, the first in the chain of new industrial zones along this railroad.

What is the principal characteristic of the Upper Lena TPK (Territorial Production Complex)? What are the components of its natural resources that determine the branch structure of the future complex? Here are concentrated East Siberia's largest raw material resources for the lumber, pulp and paper, and wood processing industry. Suffice it to say that the timber stands are estimated to contain about 2.0 billion cubic meters of timber, and by conservative estimates the annual timber cut of the Upper Lena TPK will be around 13 million cubic meters. In addition, the complex is of great importance also as a unique transshipment point for the growing volume of freight from the European part of the Soviet Union that arrives by rail and is shipped further north by water.

In the draft of the program for the economic development of the BAM zone, which is now being studied and refined within Gosplan USSR, the prospects of the Upper Lena industrial region's development occupy a prominent place. However, the preparations for the intensive formation of the TPK are far from complete. Why is this so, when considerable time has already elapsed? The main reason, in our opinion, is that the study of the region is proceeding in a fragmentary and haphazard manner. In sum, the scientific and design studies have been completed only for some of the construction projects. Evidently Gosplan USSR has failed to provide from the very beginning specialized management for the scientific and design studies. And as soon as this activity is not governed by a unified plan, the institutes of Gosplan USSR and Gosstroy USSR, and the branch organizations are participating in it in a disunited manner, concentrating only on their separate tasks. Often things come to a standstill for a long time, because problems arise that exceed the competence of the ministries and other central agencies.

This state of affairs regarding the feasibility studies and the planning and design of the Upper Lena TPK's construction projects is not exceptional; it is characteristic of the other territorial production complexes as well. Today the idea is being advanced in the press and at various conferences that a coordinating organ is necessary to resolve all the problems concerning the formation, development and activity of a territorial production complex. This idea should be supported. In our opinion, such a coordinating center would not only speed up but also qualitatively improve the scientific and planning preparations for the intensive development of the BAM zone.

The slow pace of events in the initial stages of developing the new territorial production complex could cause the national economy substantial losses. In Ust-Kut, for example, which is destined to be the heartland of the Upper Lena TPK, the Osetrov river port is coping with annually increasing volumes of freight. It is being expanded, its shipbuilding and repair capacities are being increased, but with each navigation season it becomes apparent that the guaranteed drafts along the Ust-Kuta--Kirensk route are limited.

For the river boatmen this problem has not arisen yesterday. Scientists and practical experts are proposing two solutions: either move the port to Kirensk and build a railroad line from the Lena station to this new port; or build a dam with a hydroelectric power plant above Ust-Kut, to stabilize the flow for the duration of the navigation season. Which of these variants is the more advantageous? Protracted consideration of this problem at the RSFSR Ministry of the River Fleet and the USSR Ministry of Power and Electrification has been unable to produce an unambiguous choice, because each of the parties involved is led by the interests of its own central agency. Moreover, the Leningrad department of the Gidroyekt Institute did not complete on time its feasibility study of the Upper Lena's complex utilization for shipping and power generation.

Similar prolonged "routes" from the setting of an objective to its practical realization will arise in the near future, in the period of the Upper Lena TPK's intensive formation. So far as the development of timber resources is concerned, the losses can be appraised already now. What has prompted this conclusion? It is common knowledge that the most effective utilization of timber resources requires the establishment of complex enterprises for logging and for the complete mechanical and chemical processing of the wood. But the present practice of utilizing these raw material resources could hardly be called sensible.

The point is that most of the timber stands along BAM's Irkutsk section and the banks of the Lena have been divided, with the approval of Gosplan USSR, among small enterprises subordinate to a variety of ministries and other central agencies. There are already scores of such timber managements. Without concern for the future of the region, they are forcefully logging and shipping cut the timber, usually the select first-grade trees, leaving the saplings on the wood lots. Having become the masters here, the ministries are multiplying these subdivisions that are logging for their own account. In particular, following the example of the Kazakh SSR Ministry of Agriculture, two timber managements have arisen at the Ul'kan station, and three more are under construction at the Umbella crossing.

Within the Upper Lena TKP the small enterprises are occupying large areas that are the most suitable for industrial development and civilian construction. And this unsuitable practice of timber utilization does not seem to bother the planning organs for the time being. Parallel with the hectic activity of the so-called salvage loggers, they have set aside the economically substantiated recommendations of Giprolesprom [State Institute for the Planning of Enterprises in the Wood Processing Industry] that called for the establishment of only a few large enterprises capable of utilizing timber resources in a complex manner. A master plan for the location of such enterprises was prepared already in 1968. So far, however, the construction of only one timber management of the USSR Ministry of the Timber, Pulp and Paper, and Wood Processing Industry has begun in the region.

What is happening? The specialized large enterprises of the USSR Ministry of the Timber, Pulp and Paper, and Wood Processing Industry remain on paper in long-range drafts for more than a decade, but at the same time there is ample financing for the small enterprises that do logging for their own account, are exporting the timber without any control, and have no interest whatsoever--and lack also the ability--to utilize the timber resources sensibly and effectively. Practically nobody analyzes their expenditures, since they receive special-purpose allocations from the funds of the ministries and other central agencies to which they are subordinated. In other words, there is ample financing for such "development" of the new region. Can the explanation of this be miscalculations in the original planning, in managing the process of creating the Upper Lena Territorial Production Complex?

Practice shows that omissions in the initial stages of work in a new region often lead to haphazard solutions of complex problems, even at a loss. Take as an example the power transmission line in the western section of BAM. The USSR Ministry of Power and Electrification placed this transmission line in operation with considerable delay, at a time when a considerable number of industrial plants and homes had already been built along the line's route. Understandably, for a long time it was necessary to haul fuel for the diesel generating plants with which the many enterprises and organizations had equipped themselves.

The involvement of too many central agencies is hampering even today the complex development of BAM's Upper Lena zone. Small settlements have mushroomed near the railroad stations and crossings, each with its own utilities and consumer services. The local organs solved routinely the problems of allocating land and evaluating the central agencies' projects, hoping that everything would turn out right in the end. At the Ul'kan and Kirenga stations, practically all the land has been assigned for the settlements of timber management subordinate to nonspecialized ministries. To prevent unbalanced and in many respects chaotic development in the future, and to correct the situation that has arisen, in our opinion it would be necessary to set up, within the framework of the established schedules, directorates for the construction of settlements, placing them under the rayon executive committees.

So far as long-range development is concerned, one would expect that Gosplan USSR should be able to determine which ministry and which large construction organization can expediently play the leading role in the development of a new

region. The advantages of this approach are clearly evident on the example of the neighboring Bratsk--Ust-Ilimsk TPK. In 1956, responsibility for all construction in the zone of the Bratsk GES was assigned to Bratskgesstroy, a specialized construction administration of the USSR Ministry of Power and Electrification. The further course of the formation of this large territorial production complex confirmed the foresight of this solution.

In the course of elaborating the program for the economic development of the Siberian and Far Eastern territories, it is certainly necessary to give special consideration to the possibility of attracting manpower from nearby developed economic regions. The problems of cooperation usually are solved from the standpoint of the central agencies, without taking the territorial factors into account. It is not surprising that employees of Bratskgesstroy are working on construction projects of the Ministry of Power and Electrification, thousands of kilometers from their home base. This is hardly expedient from the viewpoint of the national economy.

It would make more economic sense if the powerful Bratsk--Ust-Ilimsk Complex, with its developed power industry, construction industry, and scientific and planning organizations, were to actively participate in the formation of the neighboring Upper Lena TPK. The production base of Bratskgesstroy undertakes over 400 million rubles' worth of construction and installation work annually. The administration specializes in the construction of hydroelectric and thermal power plants, and wood chemical plants, and specifically these directions will constitute the foundation of the Upper Lena TPK's economy in the first stage of its development.

But on the territory of the neighboring TPK the enterprises to be built will be basically enterprises of the Ministry of the Timber, Pulp and Paper, and Wood Processing Industry, whereas Bratskgesstroy belongs under the Ministry of Power and Electrification. This administration began to build lumber industry complexes in Bratsk and Ust-Ilimsk at the time when the construction of the hydroelectric power plant, and of the infrastructure's basic elements, was nearing completion, i.e., when the volume of work on the power projects was declining. In the neighboring TPK, however, it would be necessary to begin with the construction of establishments that do not fall within the production structure of Bratskgesstroy's central agency. But this contradiction is only a relative one and can easily be overcome by such a strong and diverse organization as this construction administration. The more so because lately Bratskgesstroy has been seeking work on distant projects, in order to keep its personnel gainfully employed. The contribution of the Bratsk--Ust-Ilimsk TPK could be considerable also in training personnel for the newly built industrial plants. The point is to utilize the capacities of the institute of technology, of the pulp and paper industry tekhnikum, and of the vocational and technical schools.

The next territorial production complex is being born in Siberia. The better substantiated the solution of the key problems, the sooner will this complex join the ranks of the operating ones. Today, as never before, it is important to bear in mind not the momentary advantages of the individual central agencies, rather the final national economic effectiveness. The accumulated BAM experience confirms that this requirement applies uniformly to all participants in economic development, from Gosplan USSR down to the common installation worker.

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